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RAILWAY TRANSPORTATION

A HISTORY OF ITS ECONOMICS AND OF ITS RELATION TO THE STATE

BASED, WITH THE AUTHOR'S PERMISSION, UPON PRESIDENT HADLEY'S "RAILROAD TRANSPORTATION: ITS HISTORY AND ITS LAWS"

BY

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To

THE MEMORY OF

GEORGE NEWTON RAPER

WHO AT THE TIME OF HIS DEATH, AT THE AGE OF TWENTY-ONE

HAD BEGUN TO DEVOTE HIS LIFE TO THE STUDY OF

ECONOMIC PROBLEMS

223677

PREFACE

SO great has been the development of railway transportation, and so important have been the laws of the State's relation to it, since President Hadley's book was written, in 1885, that it is vitally necessary to bring the statement down to the present. The last quarter of a century has been so full of significant change, that it must necessarily be included in any work on railways.

Railway Transportation is a new book, even in that part which treats of the early years, though it is, with his permission, based upon Hadley's *Railroad Transportation*—a work so admirable that it deserves to live as long as railways are the subject of serious study. Its chief purpose is to revise and enlarge Hadley's book. It traces the history of railway transportation in its more vital aspects in Great Britain, France, Italy, Germany, and the United States—in the most characteristic sections of the world. It traces this historical development, not for the sake of the antiquarian, solely to throw light upon the present management and regulation of the railways; and, along with the historical narrative, runs that spirit of criticism which makes comparisons and estimates of values. In its final chapter the reasons and the methods, as well as the history, of state operation in the representative countries of

Belgium, Austria, Italy, France, and Germany receive consideration.

In all cases of facts, the effort has been made to ascertain the most reliable ones. The records have been examined, and, where these have been found to be discrepant or lacking in uniformity, every effort has been made to correct them. The works of the best students, so far as the author can judge them, have also been examined, for general facts, observations, and criticisms. Since the book is designed for the general reader, as well as the special student of railways, few foot notes are made, only for controverted points. The author desires, in this connection, to express his great appreciation of the kindness which has been shown him in all his efforts of investigation. He would acknowledge his obligations particularly to those in charge of the Königliche Bibliothek, at Berlin, and of that remarkably complete collection in the Ministerium der öffentlichen Arbeiten in Preussen.

The records and the best secondary sources have been examined, but this has not been the only task. Personal observations, which cover, with fair completeness, the conditions of the lines and equipment, the methods of operation, and the general characteristics of the traffic, have been made in all the countries that come under treatment.

C. L. R.

Chapel Hill,
September 1, 1911.

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Kilometre	.6213	mile
Kilogram	2.205	pounds
Ton (metric or 1000 kilograms)	2205	pounds
Ton (English)	2240	pounds
Ton (short)	2000	pounds
Pound Sterling	4.866	dollars
Shilling	24.3	cents
Penny (English)	2	cents
Mark	23.8	cents
Pfennig	.238	cent
Franc	19.3	cents
Lira	19.3	cents
Centime	.193	cent

Railway Transportation

CHAPTER I

MODERN TRANSPORTATION

THE last three generations have seen so many new things, that they have, quite largely, been confused as to their real significance. Some of these new things have brought the greatest and most wide-spread revolutions; some have been merely manifestations of change. The coming of a new form of transportation and communication, the steamship on the sea and the locomotive on the land, has perhaps been the most fundamentally revolutionary of all the many wonderful things in modern life. It has been a destroying and a re-making force wherever it has come.

Transportation, of some form, has always existed. The sled upon the ice or upon the ground, drawn by animal or man, and the boat upon the water, of whatever shape and motive power, have been vital forces in life from the beginning; and both of them have gone through many stages of development as to form and efficiency, though most of these changes have come within a shorter span than a century and a

quarter. The highway and the waterway, in some form, man has always had; and they have profoundly influenced his life, even though all unnoticed by him. Transportation in any and all forms was, however, until a hundred years ago, really a minor thing, if not a very insignificant one, as compared with what it has become within the last half of a century. Few products were till then moved from place to place. Communities were largely dependent, for the satiation of their wants, upon their own products. They largely lived the self-sufficing life, so far as the products of their hands or the demands of their bodies were concerned. Rarely did people move from place to place, for pleasure or for business; they lived in comparative isolation. Traffic, whether of commodities or of persons, was, therefore, till then very slight. Now all this has been changed. The movement of goods and persons has come to be of tremendous proportions and consequences.

Little wonder that the world changed so slowly throughout all the centuries. Its migrations of persons and its transportation of their products were too expensive. The all-consuming passion of war alone could put these into motion; the desire to gain in trade or by change in occupation or residence was for the most part too weak to bring great movement. Among the ancient peoples, efficient highways existed only where war on a large scale was the customary thing. The most famous highways of the world have been, until in very recent years, the Roman roads, which were constructed and maintained for military purposes, rather than for commercial transportation. With the decline in the military power of

the Roman State came decay to the highways, and Europe saw no effort at extensive building or maintenance of highways for almost a thousand years.

At the close of this long period, popularly known as the "Dark Ages," commerce, rather than war, assumed the lead in such an effort. The work of the famous Hanseatic and Rhenish leagues in the construction and maintenance of national and international highways was one of their greatest achievements; they connected for the first time many points in Northern Europe. London now held relationship with Eastern Europe, and Northern Scandinavia with Southern France. Though this movement in transportation was primarily for commercial reasons, it exercised a profound influence upon the political and social phases of life, as well as the commercial.

Then came highway building for politico-national reasons—to cement the peoples of a thousand feudal localities, largely different and independent, into a nation, to add to the power and pleasure of an ambitious monarch. France was, perhaps, the best example of this road building. Not only highways, but also artificial waterways as connecting links of the natural waterways, were under such an impulse constructed. Commercial motive, to be sure, played in this a part, but politico-national purposes were the dominant ones.

The modern highway, which was the product of the forces of commerce and nationalisation, and the waterway, of the river or the canal type, constituted until practically sixty years ago the important means of the transportation of persons and commodities and of the transmission of ideas. These means of

transportation, certainly the highway, were, however, for the most part for short distances; and so they continue to be to this day. The world had little of long-distance transportation until less than a hundred years ago. The traders of the Middle Ages had, to be sure, their caravans moving from far-off India to the Mediterranean Sea, and from this to Northern Europe, but these long-distance caravans moved only occasionally. Frequent communication between the large centres of Europe was unknown until after the coming of the railway. It was not until 1833 that London and Paris were connected by a daily mail, and Paris and London were not then connected with the other centres of Europe by frequent mails, only once or twice weekly. Cheap and efficient postal service did not come in England until 1840, and in the other leading countries until later. A fairly efficient national postal service existed by 1851–52, an international one, not for a quarter of a century more.

Another means of communication came at practically the same time as the efficient daily mail—the telegraph. This came into use in England by 1839–40, in the United States by 1844, in Germany and Austria by 1849, and in France by 1851; and this means of the transmission of ideas was, just as the railway, a tremendous force to make and to change life.

The application of steam as the motive power for the ship upon the water was a dynamic thing. While in use upon the river and coast-wise craft early in the nineteenth century, steam was not regularly extended to ocean navigation until 1838, and it was not until after 1850 that it proved its permanent superiority over the sail. Since that date the ocean tonnage

and passenger traffic have year after year grown, until they are now of huge proportions; and the size and efficiency of this form of transportation and communication each year become greater.

The coming of steam to the ship at sea brought a great revolution to navigation and to international relationship. The coming of the locomotive brought a still greater one to the internal commerce and industry of peoples, as well as to their political and social thought. The steam railway came to take the place of the highway and the canal for most of the traffic, for practically all of the passenger traffic and a large bulk of the freight. The scope and magnitude of its tasks, and the vital importance of its work, have caused modern business life to crystallise itself into the railway organisation, and have made the railway corporation, in turn, perhaps the most dominant factor in the field of politico-governmental thought and activity.

The railway has now for more than a half century been the most vitally important means of the transportation of goods and persons and of the transmission of ideas. The technics of railway transportation has become one of the greatest of the applied sciences; the making of the road-beds, locomotives, and rolling-stock, has called into being and maintained upon a large scale one of the greatest of all phases of engineering and industry; the traffic of the railway, in its solicitation, movement, storage, and delivery, has become one of the world's most important achievements; the finance of railway transportation has come to possess tremendous proportions—to involve as much as one-eighth of the entire wealth of a highly

efficient and productive people, as is the case in the United States.

That such an institution should have played a vitally influential rôle in European and American politics, in fact in all national and local politics, wherever it exists, is no less than could be expected. It has been active in the lobbies of legislative hauls; it has been active at the polls; it has had its friends in all assemblies; it has given legislators their most difficult task in constructive law-making. The creation, perfection, and operation, of the Interstate Commerce Act have, we think, been the severest test of the efficiency of the Congress of the United States it has ever had.

The railway has become so great because it has rendered so vitally important a service. It has created a large body of utilities. The creation of the products of the soil is of little avail unless they can be transported to the centres of their transformation into finished goods—into those commodities which are demanded for the satiation of the ordinary universal wants for food, clothing, and shelter. And so are these finished products of little value unless they can be placed at the door of the consumer, wherever he may wish to dwell. Railway transportation has, therefore, made possible a large production of raw materials, wherever the earth is adapted to their making; has made possible concentration in the making of finished goods in those places where natural motive power exists or men congregate; has made possible living, for all classes of men, upon a vast and varied territory. Railway transportation has almost completely changed

the surroundings of man's life—the relation of his wants and products. It has destroyed his isolation and his economic self-sufficiency. It has worked always toward the nationalisation of peoples in their business and in their social and political relations and ideas.

Railway transportation has also brought complications of its own. The economic activity of a people covers, as a result of the coming of the railway, a vaster range, and its problems, therefore, become more difficult. Only the more capable man can control such extensive activity, only the more efficient government can regulate it. The railway has become vitally interwoven with all the varied and complicated phases of economic life; it has made the problem of the distribution of goods or values into wages, interest, pay of management, and taxes, all the more confused; it has changed the wants as well as the productive power of the labourer; it has caused tremendously large accumulations of capital to be made; it has meant that property rights become international and national, as well as local. That such a form of transportation should have come to be considered as a public business, at least a quasi-public one, is perfectly natural. The really strange thing is why the people should have so slowly come to have this conviction.

This new form of transportation and communication, this thing which has meant revolution of life and thought wherever it has come, is considerably less than a century old. The first railway in the world came one hundred and eleven years ago, in 1801, when the first chartered horse-car line was opened for service, in the suburbs of London. The horse-car rail-

way was of only slightly, if any, greater value than the highway, but it was to become the foundation upon which the locomotive railway was to be built. The locomotive was slow in coming after the discovery of the power of steam as a motive force. It required compact space in which to generate the large volume of steam needed; and it was not until the tubular boiler, with its artificial draft made by the escaping steam, had been invented, that the locomotive became an effective thing.

It was no mere chance that the first locomotive was constructed in England. Her industrial revolution in the field of the making of textiles, especially cottons, had given her the inventive spirit, and had created the surplus capital necessary for such a work. The spirit and the economic conditions were ready, but it was an immensely difficult task to secure from Parliament the legal right to construct the first steam railway. The canal and turnpike interests had for more than a quarter of a century been the dominant factor in English politics, and the charter to the Liverpool and Manchester Railway Company was obtained only after a most determined fight.

The beginnings of the steam railway came during the latter part of the decade 1820–30. This form of transportation did not, however, prove itself a well defined and permanently useful one until near the middle of the century—sixty years ago. By this time it was clear that the railway was a radically new form of transportation; that it was not, as had for twenty years been thought, merely an improved highway, upon which every citizen could at pleasure operate his cars and pay his tolls. It had now become

a settled policy that only the corporate owner could operate the cars or trains and that only the owner of the way was responsible for the traffic, the charge, and the accidents. It had also by this date become evident that isolated and disconnected lines could not possibly perform the proper service, and could not pay a fair interest on the capital invested and at the same time sell their services at reasonably low rates. The new form of transportation must, therefore, make changes in its organisation before it could become efficient; it must, by consolidating and combining the old lines, create long-distance through ones; it must construct new lines to make the old ones more complete; it must offer a more efficient service at lower rates.

In 1850 practically every community in which the railway had come was inefficiently supplied with transportation facilities. There were a number of lines, but these were almost wholly disconnected; there was practically no through-traffic, either passenger or freight. The small lines now became larger and more connected. The new corporation began to play a vital rôle in business, finance, and politics. It soon pushed lines over the hills and through the mountain-stretches which no small corporation could possibly construct, and which as independent lines could not for many years be self-supporting, but which as integral parts of a great system could be afforded. The isolated short line of railway was hardly of more value than the highway or the canal; the new long line, operated by a powerful corporation, was in every way a tremendous and revolutionary force. Localities which had been widely separated

now became intimately connected; they now formed one greater locality, with its common life and interests. This consolidation and extension of the railways went on at practically the same time as the increase in the speed, comfort, and efficiency of the ocean steamship, and the two have, working together, gradually made the thousands of localities of the world, all isolated and more or less different and antagonistic, into one vast community. The spirit of great transportation has indeed revolutionised, connected, and civilised the world, as well as nations and localities. The industries, the commerce, and the national administrations, have all worked together for a larger, a more consolidated, and a more efficient system of transportation and communication.

There have in recent times, to be sure, been some obstructions to international relationships and trades, as, for instance, the protective tariff systems of the various nations, but these have been in many cases offset by cheap transportation, rail or water. Most of the production of the world is now no longer for local consumption, but for transportation to all its parts. The supply of products has come to be centred upon an international market, and so has the demand for them. This great achievement has been the work of the modern means of transportation operating in connection with the modern system of international banking—a remarkably efficient institution, which has, like the railway, the steamship, the telegraph, and telephone, etc., come to bless man.

Railway extensions, even though at the time not profitable, and with slight prospect of becoming so in the near future, were made, to meet the demands of

the growing spirit of nationality, as well as of commerce and industry. The railway had become a political necessity, more especially in Germany, Belgium, Italy, and Austria. Solferino and Magenta, battles which fundamentally changed the life of the Italian nation, turned largely upon the fact of the non-existence of certain stretches of railway. Prussia witnessed, in the Franco-Prussian war, the efficacy of an efficient system of railway transportation; her armies were, by means of it, at the strategic spot at which to strike an effective blow.

Under the powerful spirit of growing nationality and commerce, the railway mileage of the world rapidly increased, from approximately 24,000 in 1850, to about 231,000 in 1880, to practically 600,000 in 1910. The traffic has even more than kept pace with the marvellous growth in the mileage, and in a number of countries transportation has become cheaper and cheaper, as well as increasingly efficient. But in some of the countries, notably the United States and Great Britain, the means of efficient control by the government did not keep the pace set by the growing mileage and traffic, and in consequence certain abuses arose which need not have been.

This new form of transportation, this fundamental force in all phases of modern life, is at work at all times and almost everywhere. In the price of practically every commodity, there is a part that is due to the railway. Everybody is, therefore, interested in it, whether he is conscious of the fact or not. The transportation service is, on the other hand, fundamentally dependent for its prosperity, yes, its life, upon the general conditions of the traffic, upon

the prosperity of the agriculture, the forestry, the horticulture, the manufacture, and the commerce of a community or a nation. It cannot possibly prosper unless the people also prosper. It cannot charge rates higher than the shippers can, from the point of view of both present and future production, afford to pay. A railway, or any other form of transportation, can, therefore, never afford to be hostile to the interests of a community, nor the community to its transportation agencies. It is only when the railway is in the hands of the short-sighted manager, and the interests of the public are dominated by the near-blind shipper, that trouble between the two arises. Short-sighted and non-sympathetic railway management, as well as unintelligent and hostile legislation and control by the state—these are both in the long run really self-destructive.

It has, however, usually required much time before the two parties have seen each other's viewpoint. Too long the railway manager has seen only one side of the situation; too long has he fancied his business a private one, when it should always be a public or a quasi-public one. Too long has the state, more especially in Great Britain and the United States, permitted, by its charters and laws, the railway manager thus to think of himself. A great struggle finally came, as come it must under such circumstances, between two parties who should have from the nature of their relationship always been friends. The sanity of the railway management and the wisdom of the people are always shown in the condition of the relationship between the railways and the state.

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(No attempt is made to give an exhaustive list of the sources. Only those which we have found to be most valuable are given; and these are arranged in the order of what we believe is their relative importance.)

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CHAPTER II

RAILWAY TRANSPORTATION IN GREAT BRITAIN

ENGLAND has been the leader of the world along many lines. It was here that the first modern system of the making of textiles, the factory, was introduced; it was here that the first laws regulating employment in factories had their origin and fullest development. England has also in commercial and transportational facilities been a pioneer. She came to the front in the commerce and navigation of the world during the latter half of the seventeenth century, and before the end of the eighteenth she was dominant in the field of manufacture. Her commercial and industrial activity brought her surplus capital, as well as skill and spirit, and when the locomotive came this capital was ready to invest itself in it, though it was an untried field. English capital was then willing to invest itself in any field of activity which would bring returns, and which would especially stimulate commerce and manufacture. The investments which Englishmen had during the last quarter of the eighteenth century and the first twenty-five years of the nineteenth put into the new method of manufacture, the factory, had reaped an abundant harvest.

(*a*) *Development of the Lines*

That the first line of steam railway should have come in England was, therefore, to be expected. This line was opened for service in 1825. It was, however, a very short one, of only eleven miles, and it brought but the slightest public attention to it, though it was the beginning of the most revolutionary force in modern life. The industrial progress and development of England had by this time come to demand some new means of transportation; the highway had already proved itself an inefficient one for other than purely local traffic; the interior water transportation facilities were steadily becoming less able to meet the demands of the ever expanding industries and commerce.

Though the first line of steam railway created but little attention in the minds of the people, it marked an epoch in the life of England and the world; and when the Liverpool–Manchester railway, chartered in 1826, was opened for traffic in 1830, the masses began to understand, though vaguely, what had happened.

While English industries and commerce were calling for the coming of this new means of transportation, the railway was for a time vigorously opposed, especially by those who had capital in the turnpikes and canals; and in 1820–30 there was comparatively a large amount of capital thus invested. The people were generally slow to see the need of a new form of transportation. They opposed the proposition that Parliament grant the legal rights, and they demanded excessively large prices for its way. To secure from Parliament the charter for the first important line,

that of the Liverpool–Manchester, was, therefore, a tremendous task. It required the energies of such a remarkable politician as Huskisson, to say nothing of the expenditure of almost $350,000.

Opposition to such a new form of transportation could not, however, be all-powerful for long. English industrial life demanded the railway; the canal companies, which had had for many years a practical monopoly, were acting in a very short-sighted manner and were, therefore, becoming obnoxious to the public. The Liverpool–Manchester was from the beginning successful, and it rapidly proved the superiority of the railway over the highway and the canal. Popular indifference to the new means of transportation rapidly disappeared, and Parliament became all too eager to make grants of charters. Applications for these became more numerous year after year, until in 1836–37, when the demand for charters reached the intensity of almost a mania. New lines of railway were constructed, and these were fairly successful, in spite of the fact that most of them had to compete with the canals. By 1843 the foundations of the present system had all been laid except those of the Great Northern and the Chatham and Dover, and by this date the important lines had all proved their ability to aid English industry and commerce, as well as to make fairly large, in some instances as much as 10 % to 15 %, returns on their capital investment. The fact that railway construction came to a complete standstill in 1843–45, was due to the depression which came to British industries as a result of poor harvests and of such disturbing legislation as the repeal of the Corn Laws, not to the

opposition of Parliament or the indifference on the part of the people.

Railway building in England has from the first been done by private enterprise. At no time has the national or the local government given aid. The operation of the lines has also been exclusively private, and there has been little suggestion until very recent years of state management. Private capital unaided by the state could afford to make the effort; the conditions of traffic were such as to make it profitable. In England, the government has never contributed to one of the systems a subsidy or a guarantee of interest, and but once to a local line. It is in Ireland alone of all the United Kingdom that the state has rendered assistance to railway building; and here the guarantee of interest has, by the local authorities, been only for certain lines that must operate under exceptional conditions of traffic.

The companies at the beginning, and for a considerable time afterward, secured charters for only short lines. There were then numerous companies, and consequently many independent lines, with small capital and territorial rights. During the thirty years from 1820, when the first charter was granted by Parliament, to 1850, when there were in operation approximately 6600 miles of railway, many hundred charters were obtained. The average length of a line was up to 1843 less than thirty miles, and it was hardly more than half this in 1844; during the four years 1844–47 more than six hundred small lines were chartered. Such a policy of granting charters meant, of course, that there was much competition between the early railways. Parliament did not then

understand that the railway is from its very nature essentially monopolistic; it then acted upon the assumption, which has since proven itself to be incorrect, that all forms of transportation must be competitive.

The first decade of the British railways came to a close with a mileage of only 156, but the process of construction was at work; by 1845 there were 2531 miles. From 1845 to 1860 the increase was much more important. During these years nearly $80,000,000 were annually invested in railways, and the mileage grew to be 10,407, with a total capital investment of approximately $1,700,000,000. The next decade witnessed also a great extension. The United Kingdom by 1870 had 15,537 miles. Since that date the growth in mileage per decade has not been great, though still fairly important. It was 20,073 in 1890, 23,126 in 1908. With the growth in the mileage, has also come an extension in the second, third, and fourth tracks. More than one-half of the British lines have had since 1900 two or more tracks, as compared with approximately 10% in the United States.

The capital per mile of the British lines has also had a notable growth, as may be seen in the following figures, of representative years:

1863	£32,804	(about $160,000)
1874	£37,000	(" $180,000)
1883	£42,000	(" $204,000)
1900	£53,800	(" $262,000)
1907	£56,000	(" $273,000)

These figures, which are the highest in the world, give the average for all the lines of the United King-

dom. For the Irish lines the capital per mile is small, about £16,00 in 1905; for the English lines it is great, nearly £65,000 in 1905. The reasons for such a large per mile capitalisation have been numerous, and at times not particularly clear. The right-of-way has been expensive. The British people have not been eager for the railway to come, and they have given no land for its use. The cost of securing charters and lawyer's service has been great. The road-bed and stations have been built with the view of permanence, as may be seen in the fact that since the first it has not been found necessary to make important changes in them. The traffic has been dense, and there has been need of much rolling-stock and many locomotives per mile of line. In Great Britain expenditures for improvements have been charged to capital; in some other countries, to revenue.

Two bases of comparison of the railway mileage have been used by most of the countries: (1) the mileage of railway as compared with every 100 square miles of area; (2) the mileage of lines as compared with each unit of 10,000 population.

Upon the first basis, the British roads make this exhibit: in 1876–77, 13.9 miles of line per 100 square miles of territory; in 1885, 15.8; in 1900, 17.9; in 1908, 19.06. The mileage of the railways as compared with the area of the United Kingdom has, therefore, been relatively adequate.

Upon the second basis, the mileage of line has had practically no increase, as may be seen in these figures; in 1876–77, 5.04 miles of railway per 10,000 population; in 1885, 5.2; in 1900, 5.32; in 1907, 5.58. The really vital thing for a densely populated people

is, however, equipment per mile, rather than mileage in itself.

Great Britain, like many other countries, began with numerous small and disconnected lines, but the process of consolidation and combination was early at work; and now for many years there have been but a few big systems of lines. This process has for Ireland and Scotland achieved practically the same result as for England and Wales; it has worked toward larger lines and systems, until monopoly rather than competition has become the controlling principle of railway transportation.

In England the following systems have long been the dominating factors in transportation: (1) the London and North-western, which covers a territory of three hundred miles in length by two hundred in width, and which reaches from London to Carlisle, from Cambridge to Swansea and Holyhead; (2) the Midland, which operates a service through the eight largest of the cities of middle England, and which by its system of transfers profoundly affects the prosperity of Glasgow, Edinburgh, Newcastle, and Hull, though these towns are not directly upon its lines; (3) the Great Western; (4) the London and South-western; (5) the London and Brighton; (6) the South-eastern and the Chatham and Dover; (7) the Great Eastern; (8) the Great Northern; (9) the North-eastern; (10) the Great Central.

The process of amalgamation, which has created the great systems, is perhaps one of the most strikingly characteristic things in all the history of the British railways. The history of the lines is, in fact, one of a series of combinations and consolidations. This

process began to be a serious thing early in the development of the lines, certainly as early as 1844. The public has, in the United Kingdom, never assumed the attitude of serious hostility toward such amalgamations as has at many times been its disposition in the United States. It has, to be sure, taken a keen interest in them and has through the government more or less efficiently controlled them. There was during the early days some disposition to oppose consolidations and combinations. The shipper, as well as the government, did not for a time understand the reasons for such formations or their results. The whole matter was, after the English fashion, investigated. The Board of Trade made a report in 1845, to the effect that consolidations were beneficial if they were of continuous, not competing, lines. Parliament also appointed committees to make further investigations. The report made to Parliament by a committee in 1846 caused no legislation, but the Railway and Canal Traffic Act of 1854 came from the suggestion contained in a report made in 1853. This act did not put an end to amalgamations. It was designed merely to protect the local roads in their through traffic, to secure proper facilities of transportation, and to prohibit preference in treatment to shippers.

Consolidations and combinations did not cease, nor did the attempts of the government to regulate them. In 1864 the Railway Companies' Powers Act was passed, and by this the railways were specifically authorised to form amalgamations of companies and lines and to formulate agreements between themselves in practically all matters of interest. The only re-

strictions, which were put upon the railways in their pooling agreements, were to the effect that the Board of Trade should pass judgment upon all such agreements and grant a certificate authorising them.

In 1865–66 a Royal Commission was appointed to make an examination of the railway operation in all of its phases. The commission did a large amount of work and made an excellent report. Its conviction was that amalgamations would continue, even to the point of a practical monopoly. It recommended to Parliament that the railways be allowed still greater freedom in the making and the operation of working agreements among themselves, with the sole restriction that these agreements should be published, and that Parliament should have the opportunity to make investigations into the particular circumstances.

This means that the railways continued to consolidate and combine practically at their pleasure, for such legislation as there was could not prevent it, could not in fact effectually regulate it. In 1872 the two houses again appointed a committee to examine into the real status. This committee found, as was to be expected, that practically no competition in railway rates existed, that there was really no effective competition between the parallel lines of railway, only between the railway and ocean water transportation. The committee came to the conclusion that amalgamation among competing lines was inevitable, as well as expedient—a conclusion, though fundamentally opposed to those of the committees of investigation in the United States, which has been affirmed on the Continent of Europe. If this conclusion was correct, the only thing to do was

to create the machinery for the effective regulation of amalgamation; and this was in part done by the Act of 1873. This law gave the power of approving amalgamations and working agreements between competing lines to a newly created body—the Railway and Canal Commission, instead of the Board of Trade, as had been done by the Act of 1863–64.

Since 1873 there have been many consolidations and combinations, though of smaller proportions than those of an earlier date. These have been quite largely of those lines which radiate from the industrial and commercial centres, especially London, not of parallel lines. The formation of the larger systems had already been achieved. Great Britain has now for a good many years had little, if any, effective competition among her railways. She is really parcelled out between the big lines, and the shipper has expressed remarkably little concern that such is the situation, that a practical monopoly exists. He knows that the through service has become more efficient; he wishes for steadiness of values and efficiency of service rather than cheapness. He also knows that, because of amalgamation, the relations between the railways have become less hostile, that the service has become more unified, concentrated, and efficient, while no more expensive.

Thus the United Kingdom began with the theory that competition between railways was an all-beneficial thing, and that it must, by the government, be maintained, in order to counteract the tendency inherent in railway transportation toward monopoly. It was, as early as 1844, seen that competition did not regulate effectively the traffic and rates, that it

was really injurious to the railways and not particularly good for the shippers. Even this early it began to be seen, though vaguely, that monopoly railway transportation under government supervision was preferable to competitive transportation; and the years since 1844 have made more clear such a view.

The traffic of the British lines has been, as we shall later see in detail, dense, very dense upon many stretches, but still the roads have not paid large dividends on their paid-up capital. Their gross earnings have been very large, but their capitalisation per mile has also been very great, and their taxes have been heavy. The following percentages fairly indicate the size of the dividends:

1860	4.19%
1870	4.41%
1880	4.38%
1890	4.10%
1900	3.41%
1906	3.45%
1908	4.00%

That the British railways have been operated with comparative economy, is proved by these ratios of operating expenditure to receipts, known on the Continent as the co-efficients of operation:

1870	48%
1880	51%
1890	54%
1900	62%
1906	62%
1907	64%

(*b*) *General Conditions of Traffic*

The fundamental sources of railway traffic are always to be found in the natural resources of a community and in the industry of the people, as well as in its relations to the people of other localities—its transportation relationship.

The area of the United Kingdom is comparatively very small. It amounts to only 121,089 square miles, that of England and Wales to only 58,203—a territory no larger than that of many of the States in the United States, far smaller than that of some of them. This comparatively insignificant area has many rivers, but few of them are navigable at all, only six for more than fifty miles. England and Wales are by nature divided into two general and rather sharply distinguished divisions: (1) the Eastern and Southern section, that is for the most part a plain, well-suited to agriculture and cattle-raising; (2) the Northern and Western section, a portion that is hilly and rugged and possesses the bulk of the vast supply of minerals for which England is very famous.

This highly compact area is surrounded by water. There is no place in its interior more than ninety or ninety-five miles distant from a port, of which it has so many. With such surroundings, it is to be expected that ocean transportation would have a profound influence upon its railway traffic. Its imports can enter at and its exports go away from numerous places, which are really estuaries of the sea. There are practically no large cities that have less than two railways upon which commodities may move to competing ports. Only small amounts

of foreign goods make the transit of England—move over her railways for foreign ports; and the hauls of her own commodities, for domestic use or for exportation, as well as the hauls of her imports, are for short distances only. For minerals, the average haul is probably about thirty-one miles, and for merchandise perhaps about fifty.

England, including Wales, makes a very small and compact area, but her chief minerals and manufactures cover a still smaller and more compact space. The coal-fields, whose annual output in 1906 was 282,000,000 tons as compared with 415,000,000 in the United States, are located largely in the North-western half. The cotton manufacture, which is her greatest industry,—and England has almost one half of the spindles of the world,—is localised in Lancashire. Near by the cotton industry is the great woollen centre in Yorkshire. The cotton industry is in the midst of the Lancashire fields, which rank fourth in the output of the British coal mines; the woollen industry is surrounded by the Yorkshire fields, now the largest in output. The iron and steel industries, and these are near the first rank of the world, are localised not far south of the cotton and woollen centres—in the Staffordshire coal-fields, at Birmingham, and Sheffield. In the production of coal, Great Britain was, in 1906, second in rank, next to the United States; and of pig iron third, with Germany as well as the United States in the lead.

In the transportation of these very important products and many other minor ones, the railways have for years played the major part. Ocean steam and sail ships carry, however, a no inconsiderable

amount; and the inland waterways carry some, though not in recent years a significant quantity. The fact that the British railways have since 1840 steadily grown in mileage and equipment, while the British canals are to-day practically as they were during the decade of 1830–40, gives a suggestion as to the relative importance of inland water transportation. There were 4053 miles of navigable waterways in 1906. Of this 2869 miles were independent; the remainder belonged to the railway companies, at least was controlled by them. Their total tonnage was at that date about 32,000,000, two-thirds of which was carried on a thousand miles of these waterways, and 45% of which consisted of coal traffic. Practically all the commodities of much value, whose transportation demands speed, have, since 1850, moved by rail; only the bulky and low-class goods, as, for instance, coal, stone, lumber, etc., have gone by water.

The tonnage of British waterways has changed but slightly; in 1888 it was approximately 33,000,000 metric tons, in 1906, as we have said, about 32,000,000. In the case of the tonnage of the canals, as apart from the rivers, the decline has been very great. Since coal has been by far the most important item in the canal tonnage, we may take, for our comparisons, figures from this traffic. The canals of England and Wales carried 33,000 tons of coal in 1852, only 7900 in 1882, while for the same period the coal tonnage of the English railways increased from 317,000 to 6,546,000.

The British railways have thus come to play the dominating part in the transportation of commodities.

They are practically absolute masters of the transportation of persons. Speed and comfort are so vitally important in this traffic, that the canal offers no rivalry to the railways; and the river, comparatively very little.

The passenger traffic, just as the commodities, depends fundamentally upon the resources of a people, as well as upon their intelligence, desires, and tastes. People travel for business, or pleasure and culture. The volume of their travel depends also upon the density of their settlement and their per capita wealth. The historical development of this traffic is well shown in Great Britain.

For References, see Chapter IV.

CHAPTER III

RAILWAY TRANSPORTATION IN GREAT BRITAIN
(Continued)

IN no other country has there been such a development of the passenger traffic. Here it is the densest in the world, in the total number of journeys and in the average trips per head of population. The density of the British passenger traffic may best be seen in a comparison with that of some of the other leading countries. If we take the year 1900 as a typical one, we have these facts as to the per capita trips: in the United Kingdom, 27, in Germany, 12, in France, 10, in the United States, 6.9. Such a great number of trips per capita is, however, the result of a long and steady development, the facts of which are here presented, for representative years: 1.2 trips in 1845; 4 in 1854; 9.4 in 1866; 16.9 in 1876; 20.6 in 1886. The Briton took in our year of comparison the greatest number of trips, and also travelled on an average a greater total distance—about 245 miles as compared with about 220 for the citizen of the United States, 175 for the German, and 165 for the Frenchman.

(*a*) *Passenger Service and Rates*

The volume of the British passenger traffic is, therefore, large, the largest, in fact, in the world for any

nation taken as a whole. Its importance as compared with that of the commodities traffic is, in consequence, very considerable. Its volume has, however, not become large rapidly, for its growth has been with most remarkable regularity; from 1854 to 1894, the annual percentage of increase was about 5.4%—an excellent exhibit of the stability of British economic conditions and of the conservatism of the policy of the railways. For more than fifty years the passenger traffic on the British lines has brought a greater percentage of income as compared with that of the goods traffic than has been the case in any other country as a whole. The development of the passenger service as measured in terms of its relative income may be best shown by this table:

	1855	1865	1870	1880	1890	1900	1905
Percentage of passenger receipts to total income.	49.7	46.17	42.8	41.5	42.9	43.3	42.9
Percentage of freight receipts to total income.			53.5	54.6	52.8	51.	49.69

In their passenger, as well as in their goods traffic, the British railways have in the main not followed the cost of service principle of rate making. They have usually made rates according to what the traffic would bear, both as to the present and the future. Their managers have, therefore, generally made rates in order to secure traffic. They have understood well that, for the most part, it costs less per unit to carry a greater number of units of traffic.

In practically no instances, however, have they offered the public a rate so low as not to cover the cost incurred by the railway in hauling the additional traffic. They have not, on the other hand, charged a rate so high as to stop or check the movement of traffic. The British railway managers have known that it is most difficult, if not really impossible, to ascertain exactly what each unit of service costs; and they have also believed that such a basis of rate making would not be entirely fair, could it be accurately known. They have made rates on the principle of the value of the service, and they have proved that such a principle may be administered with a large amount of justice to the public.

The British rates per passenger per mile, or per ton per mile, are most difficult to ascertain. The railways do not furnish the public with adequate statistics of rates. They, unlike the Continental and American roads, do not make compilations of passenger-mile or of ton-mile statistics; they only publish tables of the gross number of passengers and cars hauled, the number of train-miles and their expenses. The British railways have as their unit the train-mile, which is a sufficient one for the railway manager, but the passenger-mile and the ton-mile units, which the public would like to know, are not given or even kept on the books of the railway. To quote from President Hadley, who in 1885 said: "Train-mile figures we have in abundance; but as long as we do not know the average weight of freight or the number of passengers carried, we cannot even guess at what these figures indicate concerning matters of public service. The English companies do not furnish or

even compile ton-mileage statistics. This is no mere accident of practice; it is characteristic of the principle on which English railways are managed. There is a fundamental difference of purpose between train-mile and ton-mile statistics. The train-mile is, in a rough way, the unit of *railroad* service—so much work done by the railroad. The ton-mile (or passenger-mile) is, in the same rough way, the unit of *public* service—work done for the public. Now, the whole theory of the English railroad system starts from the principle that the railroads are to be managed as business enterprises, not as matters of public service; hence, their impatient rejection of the idea that they should compile a set of statistics arranged from an outside point of view, with but little inside interest.'' Were President Hadley writing to-day, he could not make his statement more accurate.

The tendency of the British railway managers and the travellers to place great emphasis upon the lower-class service has, of course, exercised a profound influence upon the rates and the traffic. The railways did not at first develop the third-class service. This service had, in fact, its chief origin in an Act of Parliament in 1844—the Railway Cheap Trains Act, whose author was Gladstone. This law provided that all charters to railways should be conditioned on the supply of at least one daily train with a third-class service, at two cents a mile, over the whole line of the company. Since that date this service has year after year grown, until in 1908 it included practically 95% of the passengers and 75% of the passenger fares. The railways, of their own initiative, developed such a service to a degree never

dreamed of by the father of the Cheap Trains Act. That the development of this service may be clearly seen, we present this table, which gives for representative years the percentage of travel per class:

	CLASS I	CLASS II	CLASS III
1845	16.00%	43.00%	41.00%
1860	12.31%	31.53%	56.16%
1879	7.00%	11.10%	81.90%
1890	3.70%	7.70%	88.60%
1900	3.00%	6.00%	91.00%
1905	3.04%	4.38%	92.58%

Thus it is seen that the third-class service has had since 1844 an important growth; from 1844, when it came into extensive use, to 1879, a remarkable one. Since 1879, with the exception of one period, the increase has been only slight. The important increase from 1879 to 1890 was in part due to the passage of another Cheap Trains Act, in 1883. This law abolished the duty on the third-class tickets—that is the duty was to be reduced or abolished, in accordance with the scale of rates which the railway charged.

What have these rates been? We cannot, because of the inadequacy of the statistics, give anything like a complete history of them, and we shall present the facts, as far as we can ascertain them, for only a few dates.

In 1842, two years before the passage of the first Cheap Trains Act, the range of rates was from about 7 cents per passenger per mile on the first-class service to 2.88 cents for the third class, with an average

for all the classes of practically 3.41 cents. At this date the railways were used by the wealthier people only.

In 1885 the average rates were: 4 cents for Class I, 3 for Class II, and 2 for Class III, with an average of all services of a little more than 2 cents. The rate for each class except the third, which has remained since the Cheap Trains Act of 1844 at practically 2 cents, has had its variations. That for the first class was perhaps lower in 1885 than the average of any other period prior to 1897. The standard charges were in 1897, and for some time prior to that date, 6 cents for the first class, 4 for the second, and 2 for the third, with an average for all classes of about 2.8 cents. Since 1897 the standard rates have been approximately 4 cents for Class I, 2.5 for Class II, and 2 for Class III, with an average of about 2.57 cents. There have for many years been numerous special tickets—season, return, and working-man's—, and consequently the actual average has been lower than indicated, perhaps as low as 1.75 to 2 cents.

The comparatively low average charge since 1844, especially since 1879, has been due to the fact that the great bulk of the traffic has moved in the third class service; and the third-class service has not been poor. Its speed and comfort have been remarkably good, considerably better than on the Continent, where the rate has quite largely been about the same as the British. The fact that a rich country like Great Britain should have a third-class passenger traffic equal to practically 95% of the total, is, we think, a fair comment upon the efficiency of such a service. The British service of all classes has upon the whole been excellent.

(*b*) *Freight Service and Rates*

The problem of making classifications of the commodities traffic and their rates has on the British, as on the other railways, been very complicated and difficult. Unlike the railways of Germany, France, and especially of the United States, the British lines have made very short distance hauls; and this fact has profoundly influenced British rates. The British roads have also had a larger volume of finished high-grade commodities to haul, and much of this has by them been carried at a high rate of speed. The British railways haul much as freight, which in the United States is carried by the express companies, and at a charge much greater than that of freight.

In the making of rates, the British lines have, almost from the beginning, been under the theoretical restriction of statutory maxima. The early charters prescribed certain maximum rates, though these were not very comprehensive or specific. And early there was legislation dealing with rates. There was enacted in 1845 a law, known as the Railway Clauses-Consolidation Act, which provided that all charges should be within the maxima prescribed in the charters or by the statutes of Parliament. These maxima now became stereotyped, and they remained so until 1891–92, when changes were made by the Board of Trade and Parliament. The railways were, during this long period, practically their own masters in the making of the actual rates and classifications. The only restriction upon them was that the actual rates should be within the maxima; and they were for the most part considerably below the maxima, even

though competition between railways was most of this time ineffective.

The early classification of the goods traffic, which was made by Parliament, was comparatively simple. It contained only about forty commodities, grouped in a general way in four classes. All the commodities which were not then in existence, and which should later be presented for transportation, were to be classed by the railways themselves. Since the early lines were local in their traffic, the first classification and schedule of rates applied only to the local lines. They were fixed upon the principle that a railway was only a private toll-taker. Such questions as the relation of the bulk of the shipment to its weight and damageability, which are fundamentally important points to public carriers, were, of course, not brought under consideration.

All questions of the classification and rates of the inter-line traffic were, consequently, matters solely for the local independent lines. This traffic soon became important, and inter-line classifications and rates became, accordingly, matters of great vitality. A clearing-house was, as early as 1842, established by the railways, for the sole purpose of managing this traffic; and from this date until 1891 this inter-railway organisation was the real master in rate making and in classification. It was during all this period the greatest existing force toward unity and uniformity for the whole country, even though the process of amalgamation was at work between the various lines, and though it had no power over the classifications and rates of the purely local traffic. The clearing-house was well organised and efficiently administered.

It was neither an executive nor a judicial body; its chief function was to keep the accounts of the traffic and make settlements for it, to keep a record and make reports of all the movements of cars. This body, for its own guidance, formulated a classification, known as the "clearing-house classification." Its classification was at first in many particulars different from those of the various roads, but gradually the railways came to adopt the clearing-house classification for most of their traffic.

Under the machinery of this inter-railway organisation, the number of classes was increased from the 3, 4, or 5 of the prescribed maxima for local traffic to 7 for the inter-line traffic; and at the same time the number of commodities grew. In 1852 there were 748 inter-line traffic entries, by 1870, 1621, by 1880, 2373, by 1886, 2753—all this the result of co-operation working for many years between the railways.

This important work of the railway clearing-house did not, however, please all of the public. There had been for a good many years prior to 1888, when a vitally important new Railway and Canal Traffic Act was passed, a demand for a more simple classification, and for new maximum rates. The classification of the clearing-house did not, of course, cover the local traffic. This was still under the legal classification made during the early years. The actual rates, while generally below those prescribed in the old maxima, became from 1875 a matter of conflict between the shippers and the railways. The maxima did not cover the rates for the inter-line traffic, which had grown to be very important. They did not definitely cover the terminal charges, and over this point there was

long a dispute. They were in many different documents or acts, perhaps as many as 3000. The law of 1888 contained these important provisions: (1) a codification of the existing powers of the railways, which were hitherto in many different acts; (2) the revision of all classifications; (3) the fixing of new maximum rates.

By this law, each company was required to submit to the Board of Trade a revised classification and schedule of rates, together with the reasons for each. The railways in 1889 presented the clearing-house classification, a work of practically fifty years, with the fewest modifications. To this new classification submitted by the railways, as many as 1530 different objections were raised by the shippers. The Board of Trade, whose duty it was to secure, if possible, an agreement between the roads and the shippers, requested a series of conferences between them; and as many as 124 meetings were held, at which some modifications of the proposed classification were made. The Board of Trade then heard other objections. It held many public meetings, sent out many thousand inquiries covering a wide scope, took a vast amount of evidence, and finally, after a failure to secure an agreement between the shippers and the railways, issued in thirty-five "Provisional Orders" the new classification and maximum rates. The railways would not accept the Board of Trade's classification and maxima, and they were then submitted to Parliament for enactment into a law. They were after a long and tedious consideration by a joint committee of the two houses, and after some modification, finally, in 1891–92, enacted.

These classifications and maximum rates went into effect on the first of the year 1893.

In the new classification and maxima, a number of commodities were not specifically mentioned; and upon these the railways at once advanced their rates over the old ones, some of which had not been changed for many years, perhaps to offset the losses which would come from operation under the new maxima. Such action brought forth much objection from the shippers, and was taken under consideration by Parliament. An Act was in 1894 passed, which placed upon the railways the burden to prove the reasonableness of any increases over the actual rates in force on December 31, 1892, in case of complaint. Many complaints have been made, and the Board of Trade has effected an agreement in a number of them.

The new classification, that of the "Provisional Orders" of 1891–92, provided for three lettered classes A, B, C, and five numbered, I, II, III, IV, V. These were to be uniform for the whole country. The lowest grade traffic was placed in Class A, the highest in Class V. The commodities of Classes A, B, C were to be shipped largely in considerable lots; those of Classes I–V were of high value, and the charges for which included those of collection and delivery. This classification, like the old one to an extent, is quite complex. Rates since the passing of the new maxima have been largely inelastic; they were before this date very adjustable. The new maxima have all the time had a great, even a controlling, influence upon actual rates; the old, rarely, if ever.

The British railways, while they have operated

under legal maxima, have in their actual rates followed no well-defined standards. The maxima were prior to 1891–92 in practically all cases higher than the roads desired to charge; and these maxima were, as we have seen, for the local traffic only. The influence of the old maxima upon actual rates was, therefore, very slight. What has been the effect of the new maxima upon actual rates? This question, though a very difficult one because of the inadequacy of statistics, we shall attempt to answer, but only in a general way.

The "Provisional Orders" provided two sets of maximum rates: (1) terminal charges, which were, with one local exception, to be uniform for the whole country; (2) conveyance charges, also largely uniform.

The terminal maxima per ton (English) were as follows:

Station Charges (at each end)			Service Charges							
			Loading		Unloading		Covering		Uncovering	
	shil.	*pence*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
A	–	3	–	–	–	–	–	–	–	–
B	–	6	–	–	–	–	–	–	–	–
C	1	0	–	3	–	3	–	1	–	1
I	1	6	–	5	–	5	–	1.5	–	1.5
II	1	6	–	8	–	8	–	2	–	2
III	1	6	1	0	1	0	–	2	–	2
IV	1	6	1	4	1	4	–	3	–	3
V	1	6	1	8	1	8	–	4	–	4

These terminal charges did not, of course, cover the collection and delivery which the British roads

made for practically all the small-piece, high-grade shipments. These charges, after many years of contention between the railways and the shippers, were by the Act of 1888 left to the railways to determine. The only restriction that was placed upon the power of the roads was that these charges must be reasonable; and the final judge of this was to be the Board of Trade or the Railway and Canal Commission. Just what part of the total charges which are made by the railways for the transportation of the high-grade goods belongs to collection and delivery, we cannot say.

The conveyance rates were clearly defined in the maxima of 1891–92. While not entirely uniform for all the systems, their variations were not particularly important. These maximum rates per ton (English) per mile were fixed for the Great Eastern, a fairly typical system, as follows[1]:

	For 1st 20 miles, or part of	For next 30 miles, or part of	For next 50 miles, or part of	For remaining distance
A	1.15d (2.3c)	0.90d	0.45d	0.40d (.8c)
B	1.40" (2.8")	1.05"	0.80"	0.55" (1.1c)
C	1.80" (3.6")	1.50"	1.20"	0.70" (1.4c)
I	2.20" (4.4")	1.85"	1.40"	1.00" (2c)
II	2.65" (5.3")	2.30"	1.80"	1.50" (3c)
III	3.10" (6.2")	2.65"	2.00"	1.80" (3.6c)
IV	3.60" (7.2")	3.15"	2.50"	2.20" (4.4c)
V	4.30" (8.6")	3.70"	3.25"	2.50" (5c)

[1] The maxima for the Great Western the same as the Great Eastern, with these exceptions: 1.5d and 1.6d for Classes A and B for the first 20 miles; 1.2d for Class B for the next 30 miles; .35d for Class A for remainder of distance.

The actual conveyance rates, though we have found it impossible to ascertain them exactly, have, we think, usually been slightly below these new maxima. The conditions of the traffic of each class have always been considered; and, in the fixing of rates, the railways have since 1891–92 been compelled to consider three particular points: (1) the statutory maxima; (2) the relative reasonableness; (3) the validity of the increase. The actual charges, as well as the prescribed maxima, have followed the principle of a tapering rate up to the distance of 100 miles—for most of the British hauls—, though the rate per mile has not always proportionately decreased with an increase in the length of the haul; the conditions and value of the traffic and the vitality of the competition have played an important part. When other things have been equal or substantially similar, the actual rates, as well as the maxima, have decreased after the first twenty miles, after the next thirty, and after the next fifty.

Much of the British freight moves, not at the standard class rates, but at special commodity rates, which are materially lower than the class charges. There is a large amount of this commodity rate traffic, though secret rebating is scarcely known in the United Kingdom. Perhaps as much as 75% of the British traffic is hauled at these special rates. The railways always have the legal right to offer such reductions, provided that they are not preferential to certain shippers. They cannot, however, again raise them unless the Railway and Canal Commission give permission. Prior to 1891–93 the railways made frequent reductions in rates on certain

commodities, in order to experiment with the traffic, as to whether or not it would greatly increase with a certain reduction of rate. Since 1894 they have rarely done this. They do not feel that they can make an experimental rate unless they are practically certain of its result in increased traffic. The difficulty in again increasing the rate is too great. The Act of 1894, which placed the burden of proof of reasonableness upon the railway for any increase of rates over those in force on December 31, 1892, has, therefore, had an important influence upon rates. This influence is shown in the fact that during the decade before the period of rigid government regulation of rates (1882–92), they declined about 14%, while during the next decade the decrease was scarcely more than 2%.

It will be seen from the above table of maxima, and the actual rates are not much less, that the British freight rates are high, especially for short distance hauls and for the more valuable commodities. They make an average much higher than that of the United States. While for short distances, say less than twenty-five miles, the British rates are upon the whole no higher than those in the United States, if quite so high, for long distances they are apparently about three times as much. It should, however, be remembered that the British lines operate under substantially different conditions of traffic. They carry much traffic as freight, which in the United States moves by the passenger train at high express rates. The value of much of their traffic is high, perhaps upon an average the highest in the world, certainly much higher than in the United States, and the size of their shipments is consequently much

smaller. The length of their haul is also very short, with an average of from thirty-one to fifty miles, while that in the United States is nearly two-hundred and forty; and the terminal, collection, and delivery costs are the same for short as for long hauls. The British freight service is, therefore, not so expensive as its superficial appearance would suggest. Its efficiency is, moreover, very considerable, though it seems capable of no little improvement, as for instance in the capacity of many of its cars and much of its terminal facilities.

For References, see Chapter IV.

CHAPTER IV

RAILWAY TRANSPORTATION IN GREAT BRITAIN
(*Concluded*)

THE machinery of state control of privately constructed and managed railways has, we believe, had its fullest development in Great Britain; and the people of the United States have been profoundly influenced by the British machinery. On the Continent, state control of privately operated railways has much of the time been more or less intimately connected with state operation. In the United Kingdom, excepting a few local cases in Ireland, there has been no state building or management. Here state regulation, not state management, has been the custom.

The Ideals and Machinery of State Control

The first regulation by the state was by means of the charters, which were by Parliament granted to the railway companies. There was, however, no efficient machinery for the enforcement of the charter provisions; and, had there been an enforcement of these, the railways would not have been seriously influenced. Their charters were in a large way mere copies, most mechanically made, of those of the older turnpike and canal companies. At an early date

Parliament began to see that the railway was fundamentally a peculiar form of transportation, and that it must be dealt with as a separate institution. It was then becoming clear that a railway was essentially monopolistic, and that consequently the efforts of the early charters to maintain competition would fail. A general form of charters for railways was prescribed in 1845. Prior to this date the charters had been granted as special acts, and, since the railway interests were after 1828–30 comparatively influential in Parliament, these gave to the companies almost unlimited powers and rights. State control by means of such charters could, of course, amount to little; and the control which came through the later charters was only slightly more efficient. What of the regulation by parliamentary statutes?

The British companies have all the time been regarded as perpetual proprietors of the lines, and the sole purpose of the state's control has been to secure a more efficient service at more reasonable rates. This control for a time wavered between two methods: (1) regulation by the maintenance of competition between the lines; (2) supervision of the transportation, even though in a monopoly form. During the first twenty-five years, the method of competition was in the lead, though there was, in fact, little regulation. Neither method had during the next two decades a well-defined position. Since 1873 supervision of monopoly railway transportation has dominated, and the control has been more effective.

The first important Act of Parliament looking toward the general regulation of the railways was passed in

1844—the Cheap Trains Act—and it had, as we have seen, a decided influence upon the development of the third-class passenger service. It contained no provision for the regulation of any other part of the service. During the next year, a more general statute was passed, the Railway Clauses-Consolidation Act, which required that all traffic carried the same distance under the same circumstances should have the same charge. Its influence was, however, nullified by the fact of the practical non-existence of such traffic. Commissions, for certain terms, were created in 1844, and again in 1846, whose specific duty it was to see to the enforcement of the provisions of the charters and of the general statutes. This duty had in 1840 and 1842 been assigned to the Board of Trade, an old administrative body which already had many functions to perform. The commission of 1846, appointed for a term of five years, was composed of capable and honest men, but it had practically no powers, and consequently did little service. Unlike most commissions, it had very little work. Prior to 1854, the government had little influence over the railways; it had actual control over them only when they made applications for new powers and privileges.

Though government regulation prior to this date had been notably ineffective, the foundations of a more effective control were in the process of forming. In 1854 these were made more extensive and secure, though not radically changed. The Railway and Canal Traffic Act of this year was, nevertheless, an important improvement over the earlier laws. It required all railways, whatever their charter rights and powers, to supply suitable facilities for through,

as well as local, traffic; and it denied them the right to show any preference to shippers. Special machinery was also created for the enforcement of these provisions. Before this date the Board of Trade, or a commission, had been authorised to enforce the provisions of the charters and laws, but without sufficient power. By the new act, the superior Court of Common Pleas was authorised to enforce its provisions. The court could, upon complaint from a shipper, issue a writ of injunction; and it had the power to place a fine, not exceeding £200 for each act of disobedience to its order.

This Act of 1854 was an advance over the former ones, though it had comparatively little influence. The law was not explicitly definite, and the machinery for its enforcement was not efficient. The Court of Common Pleas had slight disposition to consider any but the legal points of a complaint. It knew little of the technical economic issues, and these were by far the more important in most of the complaints. It was, therefore, not strange that the shippers brought few complaints before such a court.

Efforts were at frequent intervals made to change the Act of 1854, especially the machinery of its execution, but little was done until 1873. A royal commission in 1867 and a joint committee of the houses of Parliament in 1872 made investigations, and their reports were influential in causing the passage of a new Railway and Canal Traffic Act, in 1873. This new law brought no fundamental modifications of the provisions of the Act of 1854; its chief purpose was to create new machinery for the enforcement of the provisions of that Act. It created a commission of

three, one of whom must be a lawyer, one a man expert in railway transportation, and none of whom could in any way be interested in railway or canal stock. All the members were to devote their whole time to the performance of the special tasks of the commission, and they were to receive the large annual salary of £3000 each. The duties, which by the Act of 1854 were assigned to a court of common pleas, were now given to the commission. It was to hear and determine all cases of complaints made under the provisions of the Act of 1854 and subsequent ones, and complaints could now be made without expense to the shipper; to hear and approve, or disapprove, all cases of working agreements between the railways, a duty which had by the Act of 1863 been assigned to the Board of Trade; to arbitrate between the railways in all cases of dispute; to require the keeping, at each station, of books open to the public; to fix terminal charges. The orders of the commission were enforcible by the regular courts. Its decisions were apparently final as to the facts—an appeal could go only upon points of law—, but in reality the court could compel the commission to "state the case." Though it had little power as an executive body, it was in its intent a court.

The Act of 1873 was for five years only, but its term was extended again and again for short periods until 1888. Such short extensions meant, however, uncertainty and lack of efficiency and dignity. The commission, which was created by this Act, and which was continued by its extensions, was not upon the whole particularly successful. To quote from President Hadley, who in 1885 said: "The commission

consisted of able men—Sir Frederick Peel, Mr. Price, formerly of the Midland Railway, and Mr. Macnamara; the last named died in 1877 and was succeeded by Mr. A. E. Miller. They went to work with energy, and in a spirit which promised to make the experiment a signal success." This success was proved by subsequent investigations to be only slight. This was not, however, the fault of the commissioners themselves, but of their powers and the scope of their jurisdiction. The commission could make findings and decisions, but could not force compliance with its orders. It had neither the power nor dignity of a court; its chief officer was only a layman, not a judge. The railways made the claim that they were acting within their charter rights, and that the commission had consequently no jurisdiction over their actions. The shippers soon found that the orders of the commission were not enforced, and ceased largely to make complaints, though to make these was not directly expensive to them. The commission's order could, of course, cover only the future action of the railways, and for past violations of the Act of 1854 the shipper must ask the aid of the ordinary courts.

The chief complaints which were made to the commission were of discriminations in rates, not of excessively high rates in themselves. The rates for the local traffic were practically never above the maxima as prescribed in the charters, and those of the inter-railway traffic, for which there were no maxima until 1891–92, were not excessive. The discriminations in rates, which were complained of before the commission, were, moreover, for the most

part due to competition between the railways and the coast-wise vessels; and this sea competition existed at perhaps three-fifths of all the railway stations.

What did the commission do with these complaints of discrimination in rates? President Hadley in 1885 answered this question correctly, we think, when he said: "These cases, and others involving the same principles, show: (1) That the commissioners are acting upon the theory that rates should be based upon cost of service. (2) That they propose to apply it to an extent which has proved impracticable wherever tried, whether by Bismarck or by the Grangers. (3) That they intend to use it as a protection to vested rights, against the levelling tendencies of the railroad system." The commission did not, however, have sufficient power to enforce such a theory of reasonableness of rates, at least to any important degree. The courts, on appeal, did not accept it as wholly valid; and the parliamentary committee of 1881–82, after much investigation, ruled against it, in favour of differential rates.

The Railway and Canal Traffic Act of 1888 was passed to meet the defects of the acts of 1854 and 1873. This law either repealed or incorporated in itself all former acts dealing with railway transportation. The experience of the commission of 1873 had clearly pointed out the weak places in this legislation, and the law of 1888 merely incorporated all the efficient phases of the former acts with important additions. It, like the Act of 1873, brought no radical changes; it codified all former laws, provided for the formulation of new and uniform statutory maximum

rates, and created a more powerful railway and canal commission.

The new commission, which was a permanent one, was composed of five members, serving a term of five years, two appointed by the crown, three *ex-officio*. Of the appointed members, one must be an expert in railway transportation. The *ex-officio* members were as follows: in England, the Lord Chancellor; in Scotland, the Lord President of the Court of Session; in Ireland, the Lord Chancellor of Ireland. These judges could, in each case, designate a judge of the highest court to serve on the Railway and Canal Commission. The commission at work must be composed of the two appointed members and one *ex-officio*, who should be the presiding officer, and who in England should be the English judge, in Scotland, the Scottish, and in Ireland, the Irish. The appointed members should devote all their time to the work of the commission, the *ex-officio* member only a few weeks in a year. The appointed members were made the judges of the facts; the *ex-officio*, the authority as to the law, though even here the lay members have, by their opinions, considerable influence. The commission was made a court of record, and its seal was to be judicially noticed.

This new commission was given all the power which the former one had, and more. It was to hear and determine cases of complaint upon rates, though, since it was a court, it should not be directly interested in making rates; this was left to the railways, the Board of Trade, and Parliament. It was to order proper facilities for managing the traffic; to hear and decide points in dispute as to the terminal charges; to

award damages to aggrieved shippers; to act as arbitrators in disputes between the railways, in case the Board of Trade should fail to secure a settlement of them. Its orders were declared final; no appeal to the superior court was allowed as to the facts of the *locus standi* of the complainant. Since the questions of the reasonableness of rates are so difficult, and at the same time so important, the commission was specifically empowered to determine what constituted reasonableness, and to decide all cases of preference of rates. It was not, however, left entirely to the commission to decide upon preference in the long and short haul; it was declared that no higher charge could be made for the shorter than for the longer haul over the same line, at the same time, and in the same direction.

The terminal charges were now for the first time designated as distinct from those for haulage. It had long been a matter of contention between the railways and the shippers as to whether the old maxima included the terminal charges. The railways had, in this dispute, claimed that these charges were not covered by the old statutory maxima; and the right of the roads to collect these as extra charges was in 1885 granted by the Court of the Queen's Bench. The law of 1888 also allowed these as extra charges, but provided for the formulation by the Board of Trade and Parliament of statutory terminal maxima. Such maxima were finally, in 1891–92, formulated and declared by the superior court to be valid. Over the charges which could be made by private terminals, as distinct from those of the railways, the commission was empowered to pass judgment.

The end of specific and comprehensive legislation

was not yet. Another decided step was made in 1894, when another Railway and Canal Traffic Act was passed to supplement those of 1873 and 1888. This new law was more complete in its treatment of actual freight rates. The Board of Trade and Parliament had in 1891–92, under the authority of the Act of 1888, formulated and enacted statutory maximum rates for terminals and for conveyance, which should become effective at the beginning of 1893. Because of these acts, the railways made certain increases in their actual rates. The law of 1894 established a basal year, and declared that all rates which were in force on December 31, 1892, were presumptively reasonable, and that the burden should rest upon the railway, not upon the shipper, to prove that increases above those of the basal year were reasonable. Such a law made it all the easier for the commission to control rates.

What has been the work of the new commission? During the first decade of its operation, the commission considered two important classes of cases: (1) Those which involved increases of rates, in order to bring to an end an anomalous condition; and in these cases the commission ruled in favour of the railways. (2) Those in which the railways claimed that an increase in the cost of operation necessitated an increase in certain rates. Wherever the railways proved that the increase in the cost of service was presumably permanent and in fair proportion to the increase of rate, the commission allowed the increase.

The commission has during its entire life heard many complaints, the decisions in which have been both favourable and unfavourable to the shippers. In the cases of complaint of excessive or preferential

rates, the commission has laid down no dogmatic or rigid rule of judgment. It has been eminently practical. It has also considered many requests from the railways for permission to amalgamate or to form working agreements. Here again it has been practical; it has been guided by the points of practical expediency in terms of public justice and welfare. Its members have upon the whole been men of great ability and devotion to public service. They have as a commission been in a large way judicial, rather than executive, but they have never followed precedent too closely. A commission can never regulate efficiently such an immensely difficult and dynamic a business as railway transportation by following slavishly former decisions, or by pursuing vigorously rigid standards of reasonableness.

The preference involved in the long and short haul has been, in Great Britain as in the United States, a subject of contention. The new commission, just as the old, found this a most difficult matter, and one of the most important of its decisions has been upon this subject. In this it ruled, and the court sustained the ruling, that the fact of the existence of effective competition, rail or water, at the more distant place, and of its non-existence at the intermediate locality, was justification for a smaller rate for the longer haul—a practical decision, rather than one decided by rigid uniformity.[1]

The cases of preference in rates between the domestic and the foreign shipper have been important, as well as complicated. The law of 1873 forbade unrea-

[1] Timm & Sons *vs.* N. E. Ry., etc.

sonable preference to any shipper, and so did the Act of 1888. But what constitutes the unreasonableness? Upon this point neither law was clear. The commission has, therefore, found this a most difficult matter, and its decisions upon it are not entirely clear and consistent. It has held that unreasonableness of preference in any form is always a matter of fact, not of general rule, and that it must be proven. May competition be the controlling factor? The commission, in an important decision, Budd's case, in 1890, ruled that water competition was not of itself a sufficient justification of preference in rate to foreign goods over domestic. In this case the commission had the idea that the public welfare was something more than a matter of two places. Such a ruling was, however, not the final one of the commission. Two years later, in the Liverpool Corn Traders' Association *vs.* the Great Western Railway, it practically reversed this decision. It was now held, though not by a unanimous opinion, that water competition might under certain conditions justify the preference in rate. The change of view of the commission was due in part to a decision of the court, which ruled that public welfare calls for the power of effective competition, and that the public interest is largely that of two localities.

The ruling of the commission in 1892 has been for the most part its general guide in cases of preferential rates for imports and exports. In a most important case, the Mansion House, of 1895, water competition was an important factor in the justification of a preference in favour of imports over domestic goods, perhaps the controlling one, though the nominal one

was the cost of service. Again, in 1903 and 1904, water competition was recognised as a justification for a smaller rate for the longer distance traffic, provided it was for export. The commission in these cases held that the smaller rate was justified on the ground that it was necessary to secure the traffic.

The question of the reasonableness of rates *per se*, which had been a very perplexing one for the British Government, as well as the British railways and shippers, was greatly clarified by the acts of 1891–92. In these laws, Parliament enacted into statutes the maxima which the Board of Trade had, after long and difficult labours, formulated. These maxima, which only the Board of Trade and Parliament could formulate and enact, became at once the standard of reasonableness for the commission, as well as the shipper. The commission was not created to make rates in the first instance; it could only declare a certain complained-of rate too high, and by its order fix the standard for that specific rate. The new maxima established standards for all class rates, beyond which any rate would be *prima facie* unreasonable and illegal. In 1894 Parliament took another important step toward establishing all-comprehensive standards of reasonableness. It now declared that the actual rates which were in force on December 31, 1892, should be supplementary maxima. There was only one vital difference between the supplementary maxima of 1894 and the maxima of 1891–92. The maxima were an absolute limit, beyond which rates could not legally go; the actual rates might, if the commission so permitted, be higher than the supplementary maxima.

The tasks of the commission became, therefore,

more simple and easy, though even yet they were difficult. The number of complaints of unreasonably high rates—that is of rates higher than the supplementary maxima—has been considerable. The commission in its consideration of them has found it difficult to formulate a clearly defined policy. It has at times ordered the railways to base their proof of reasonableness of increase of rate upon an increase in the cost of service, but this basis of rate making has not been closely or consistently followed, either by the railways or the commission.

The work of the Railway and Canal Commission has upon the whole been significantly important and successful, though it has formulated few general rules of action. It has been sanely practical. It has gradually proven its power of effective control over railway transportation. The certainty of its jurisdiction and power, and the sanity and dignity of its actions, have year after year made its influence felt and respected throughout the United Kingdom. This commission, which, unlike the Interstate Commerce Commission, is a court, has lived a dignified life. Few of its decisions have been reversed by the higher courts on appeal. It has also performed its tasks with fair rapidity. But still there is at the present a strong demand on the part of the shipper for a more rapid and decisive procedure, as well as a less expensive one, of state control. The Board of Trade, which as an administrative body has much to do with the state's regulation of transportation, is tremendously busy with many other tasks. The Railway and Canal Commission is also busily engaged, especially its *ex officio* member, its presiding officer, who, as a

judge of the regular superior court, has many other duties.

The machinery and ideals of the British state control of railways are not yet complete, but by far the larger work of their creation has, we think, been performed. Great Britain has been the world's pioneer in the introduction of this form of transportation; she has been its most perfect example of the strictly private railway corporation; she has been its greatest achievement of private ownership and operation. And it would be, to say the least, most unwise for the people of the United Kingdom to exchange their comparatively complete and efficient system, which has been created and perfected by private enterprise, under the supervision of the state, for the system of government ownership and management, the efficiency of which for the British is at least problematic.

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CHAPTER V

RAILWAY TRANSPORTATION IN FRANCE

THE French have next to the British been the leaders of Europe in the private operation of railways, and for this reason the treatment of their lines comes immediately after that of the British. Though an advanced and intelligent people, the French were slower in making use of the new form of transportation than the people of Great Britain or of the United States. They were timid and hesitating; they were sceptical as to its results. French capital was not eager to invest itself in railways, and the state was not active in granting the necessary charter rights and powers. It was only after this form of transportation had elsewhere proven its decided excellence and value, that it became at all attractive to the French. Their highways were certainly in an excellent condition, and their canals were rapidly becoming so. And the railways must, like everything else of a public nature in France, be inaugurated according to a comprehensive scheme, in which the government should play an important, if not the leading, rôle. For so long had the individual waited upon the state to take the initiative, that he was not in this new industry willing to assume all its risks, if indeed the state might grant him the necessary rights and powers.

That the railways in France should from the beginning have been vitally related to the state, though largely private as to ownership and operation, is exactly what should have been expected; they began as a compromise between the individual and the government, and so they have quite largely continued to be to this day.

(*a*) *Development of the Lines—Private or State*

It was very early seen by the French that the railway would soon become largely, if not completely, monopolistic. In this particular, the French had clearer visions than the British or the Americans, if not all other peoples. Should such an industry be left to private enterprise under government supervision? Should it at once become a state industry? These two questions were almost at the beginning of the railways in France carefully considered; and the more practical, and, as we think, more efficient, view won. This answer did not, however, mean completely private ownership and control. The state, as well as private individuals, was to construct the lines, and the state was to supervise their operation. This co-operation between private enterprise and the state assumed the form of a convention between the two parties, which clearly defined the part each should have in both the construction and the operation.

The first concession for a railway was made by the state in 1823, for a horse-car line. By this, the government granted to a private company considerable powers and perpetual rights, with no reservation of state repurchase. Other concessions were between 1823 and 1827 made, in order to secure more efficient

and cheap transportation between the centres of population and the waterways—the Loire and the Rhone. The first locomotive railway did not, however, come until in 1832. The concessions were now for the steam, not the horse, railway; and in their granting there was always some idea, though usually slight, of a state system of railways. For a time, in 1836–40, the debate over the question as to whether the railways should be operated by private companies or by the government became a matter of great interest, especially to the Chambers; and it was not until 1842 that the question was clearly answered, and then in favour of private operation. The concessions which were made after 1833 always included a provision of repurchase by the government, if the public interest should demand it, and in 1835 the time of the grant was limited at most to ninety-nine years.

The period prior to 1842 was, therefore, one of considerable indecision. Extensive surveys were made by the state, and plans were formulated, but while Great Britain and the United States were actively building lines, even though without system and plan, France was practically waiting, though her capital was abundant. During the first decade of the French steam railways, only 564 kilometres (350 miles) were constructed. The foundations were, however, during these ten years laid, and when the state clearly formulated its policy, in a statute of 1842, railway building began in earnest and with enthusiasm. This law of 1842 laid the foundations of the French railways, even as they exist to-day. It provided for the construction of nine new lines, seven of which should radiate from

Paris, and one should connect Bordeaux and Marseilles, one Mülhausen and Dijon. These lines still constitute the great arteries of the French railways. The concessions which were made to the companies were comprehensive as to the rights and duties of each party—the company and the state; and they contained a plan, for the whole kingdom, of national, local, and private aid. The government was to build the roadbed and the structures. The company was to pay for the construction of the track and its appurtenances, as well as to supply the rolling stock and to maintain the operation. The local authorities were to pay two-thirds, the state one-third, of the cost of the real estate needed for the way, a provision which was in 1845 changed to the effect that the national government should pay all of this. At the expiration of the concessions, the way and equipment were to be taken over by the state upon payment to the company for the value of the equipment.

The plan of 1842, which covered all phases of the technical, economic, and legislative aspects of railway transportation, has continued to the present with only a slight modification here and there, so consistently and comprehensively was it drawn. Its authors, the government engineers, laid out the lines with the view of permanence and the minimum of waste. They permitted no wastes of competition between the lines; they were believers in the monopoly, not the competitive, principle of railway transportation.

Under the influence of this co-operation of the state and private enterprise, of the cost of which the state should bear at least one half, if not more, railway building became active. As many as thirty-three

companies were chartered, and their lines increased in length until they had by 1847–48, when a crises and a political revolution brought them to a standstill, a mileage of 1194 (1927 km.). The period of depression that followed the economic and political disturbances made severe tests of the ability of the newly constructed lines; and, since speculation had played too large a part in their building, most of them appealed to the state for greater assistance. Capital could not be secured by them for the necessary extensions. The state must protect the funds of the companies from great depreciation, since upon these the building of lines primarily rested; and it agreed to guarantee the interest on them.

It was not until the coming of the Second Empire, in 1851–52, that railway extension again became active. The new government was eager to please certain financial interests, and to placate others, and in 1852 it made important extensions in the time of the concessions, from forty years to ninety-nine. The state now estimated that, because of the expected growth in the traffic, it would by 1951 become the owner of all the railways without paying for more than the equipment. The companies, in exchange for this extension of their concessions, agreed to bear all the expense of the construction of the branch lines, which were needed as feeders of the main lines. The main lines had, as we have seen, been constructed partly at the expense of the state, but the branch lines must now be built entirely at the expense of the companies, even though they might not for many years be profitable. The companies had by 1857, when a crisis in business and credit of a remarkable extent and

intensity occurred, expended more than $400,000,000 upon these lines. Perhaps this much more would be needed for their completion, and the companies now became unable to borrow the capital. The state was again appealed to for further aid; the credit of the companies must be sustained, or the necessary lines could not be built. This situation led to another extension of the concessions, which was done by the conventions of 1859.

The state now entered into contract with six great companies. The number of railway corporations had, as we have seen, been greater, but the process of consolidation into eleven, into nine, and now into six, had been an easy one, since no parallel lines had been allowed. The purpose of these contracts or conventions was to consolidate and strengthen the credit of the corporations, at the least possible burden to the state. In these conventions, a separation of the old and new lines was made. The state made no guarantee of interest upon the then existing lines, but upon the new ones it agreed to guarantee to the companies until the year 1914 a net revenue sufficient to make the interest on the bonds and a fund for sinking the costs of construction—4.65%. The net revenue of the old lines was reserved to the companies until it became large enough to bear the interest on the bonds and pay a dividend to the shareholders practically as large as that received by them during the last five years. In case the net revenue from the old lines was larger than this, the excess should be used for the new lines, to pay the interest on their construction bonds; and the government guaranteed to pay all of this interest only so long as there should be no such excess of net revenue

from the old lines. The amounts advanced by the government in paying this interest on the bonds of the new lines were in no sense gifts. They were only advances to the companies, and were to be repaid to the state, with 4% interest, as soon as the net earnings from both old and new lines exceeded the revenue reserved to the companies. When these advances, with interest upon them, were fully repaid to the state, the earnings above a certain per cent. were to be divided between the companies and the state.

The conventions of 1859 remained in force until 1883, though with numerous slight modifications. Other concessions were during this period granted, but they dealt solely with minor lines. The conventions between the state and the six large companies, five of which operated from Paris, and one in Southern France, brought them solid credit, and consequently much extension of their lines. There were in 1860 only 5907 miles (9528 km.); by 1870 the mileage had practically doubled. Some of this new construction was done by the big companies, a part by the small corporations, which were chartered for the building of branch lines through the more rugged and poorer portions of the kingdom. The Franco-Prussian War, 1870–71, was so disastrous to France, that railway building came for a time to a complete standstill. It was very slight in fact until 1878.

Apart from the far-reaching effects of the war, there were other influences at work to check the growth of the railway mileage and its equipment. The conventions of 1859 proved themselves to be of greater advantage to the companies than to the state treasury or the shippers. By these concessions, the big compan-

ies were given a practically complete monopoly of their respective territories. Competition in their local traffic hardly existed, and in their through traffic it was not very vigorous, though, since a part of this traffic could move by foreign railways or by the waterways, the companies were active in soliciting new through business. They did, however, little to increase their purely local non-competitive traffic. This was not because of the fact of their monopoly power over it, but because of other provisions in the conventions. The railways had too little incentive to develop this traffic. The guarantee of interest which they had from the state caused their property to possess much value, though it did only a small volume of business. Because of such provisions, some of the lines did practically nothing to repay their debts to the state; they relied to a great extent upon their guarantees. And, too, most of the new branch lines that were built by the small companies became involved in financial difficulties, in some cases difficulties so great as to assume the proportions of a crisis. They had been constructed through sections which were slightly developed, and which still had much of the self-sufficing spirit of economic life. The government was, therefore, appealed to for assistance, and in 1877–78 it purchased, perhaps in part for military reasons, the lines of ten of the small companies that were operating in the Western and South-western portions—a total mileage of 1612 (2600 km.), about half of which was of purely local interest, none of which was profitable in itself.

The lines which were taken over by the government in 1877–78 had been built largely according to a plan

of 1865, which provided for the construction of local lines independent of the big companies, located for the most part in the Northern and South-western sections. These lines were subsidised by the local authorities, and it was intended that they should never consolidate so as to break the monopoly of the large systems. When the Empire fell, and consequently the central government became weak, the provision against consolidation was not enforced. These local lines were formed into large ones—into rivals of the six companies. The processes of consolidation were finally blocked. The lines in Northern France were in 1876 taken over by the Railway of the North, one of the big six, and a very efficient one; those of the South-west were, as we have seen, purchased by the state, in 1877–78.

The lines of the state were unified, organised, and put under the administration of the government; and they have remained to the present the foundation of the state net. This net was, as we have seen, only a small one. The entire mileage of France then amounted to only about 13,000, and perhaps as many as 10,000 miles more were needed. The big companies were not ready to undertake this extension. Four of them were in fact not particularly prosperous. Under such a condition, the ambitions of De Freycinet, the Premier, had a fair chance of realisation. He set forth an elaborate and comprehensive programme of state building and operation. He proposed to complete and perfect the means of transportation, and to purchase all the existing lines for state management. This was the first moment in the history of French railways that complete nationalisation was in the ascendency. The government was ambitious for

the state to perform many new functions, and the popular mind was, for the time at least, not adverse to it. An act was passed by the Chambers in 1879 providing for the construction of 5456 miles (8800 km.) of new lines. Since the programme of the ministry was based as much upon political and military motives, as commercial and industrial ones, the new lines were to be constructed in the more remote and mountainous regions. A decade was allowed for the building, at an estimated cost of about $700,000,000.

Railway extension, under the force of such a programme and such a law, was carried on during the years 1880–82 with great enthusiasm and rapidity, though the politics of the various sections wrangled over it. By 1882 the government had, by the purchase of old lines, especially secondary ones, and by the construction of new ones, come to control almost 10,000 miles—a mileage scattered through the lines of the big companies, throughout the nation.

It was, of course, impossible to make much of this profitable, even in times of average prosperity. A panic came, in 1882, and the financial situation of the state system became very acute. The state had during the years of the acquisition of this large net been forced to lease, for a short period, small sections of it to the big companies, and it now became clear that state operation of them could not be realised for a good many years. It was now clear that at least $1,300,000,000, instead of $700,000,000, as first estimated, would be required for the completion of the De Freycinet programme. The state could not afford such a vast outlay, especially if, as now seemed evident, the earnings would not for many years cover the

expenses of operation and maintenance. The ambitious programme meant too great a burden upon the French tax-payers, and it came to a decided standstill. Its promoter, De Freycinet, was driven out of power at the close of 1880; the treasury was already burdened, and the operation by the state of the net purchased in 1877–78 had increased rather than decreased this load; Gambetta died at the beginning of 1883, and there was no longer any capable advocate of the nationalisation of the railways. That the programme of 1878 should have been abandoned, in spite of considerable popular expectation to the contrary, is a favourable comment upon the wisdom of the French statesmen who were then in the position of chief executive power. A more practical plan was adopted, and the conventions of 1883 were made with the six big companies. It was the government leaders, rather than the companies, who were eager for these conventions, for by them the branch lines, which had been proposed by De Freycinet, and which were needed, for political and military, if not commercial purposes, could be built.

The conventions provided for the incorporation into the lines of the great companies of most of the mileage purchased or built by the state—a total mileage of practically 7440 (12,000 km.). The state net was continued, with about the same mileage as in 1877, but it now, by means of exchanges with the companies, became a more unified and monopolised one, located in a more definite section, in a comparatively small territory in South-west France. The big systems had by these conventions a more complete monopoly. Since the beginning of the building of the branch lines

by small companies in 1865, their monopoly had been somewhat broken. The companies were, therefore, made stronger; and so was the state net, though it did not acquire a through line of its own into Paris—the centre of all phases of French life.

The conventions of 1883, the result of a long struggle as to whether France should have a system of private operation or one of state management, have with only slight modifications remained in force to this day. The most important change has been, not in the powers and rights of the companies, but in the absorption by the state of one of the big systems—the Western. The state net, out of a total length in 1906 of 39,772 kilometres, contained only 2780; and at the beginning of 1909, when a new state net came into operation, it had but 2990 (1854 miles). By the purchase of the Western Company's lines, according to a law of July, 1908, a new state net of 5965 kilometres (3728 miles) was formed. This recent purchase has brought to the state an important system with lines from Paris northward to Dieppe, Havre, Cherbourg, etc. It has also provided the old state net with a government line into Paris. Since the absorption of the Western, in 1909, there have been but five big systems—the Northern, the Mediterranean (P. L. M.), the Orléans, the Southern, and the Eastern, with a total mileage of about 19,218. These five companies will all by 1950–58 be absorbed into the state nets, unless there should be a change in the conventions of 1883. Their immovable property will then go to the state without pay; its value will by that time be completely amortised. The rolling-stock and other equipment will be paid for at valuation, by the

government. If at the expiration of the conventions the companies have not reimbursed the state for all of the advances made for the construction of the roadway and in the guarantees of interest on their bonds, the deficit shall be deduced from the purchase price of the rolling-stock and other equipment.

The state and the companies were by these conventions joined in the assumption of the financial burdens of the new lines—those already built or to be built after the De Freycinet programme. Most of the lines already constructed would not be profitable for many years, and the companies were, therefore, to pay for the rolling-stock and the other equipment only a small sum. At first this amount was fixed at approximately $5000 per kilometre, later for certain narrow gage lines at only about $2500. The capital needed for the completion of the branch lines in the territory of the companies was to be obtained under the government's guarantee of interest and of final amortisation. The state was also to guarantee, or make advances to cover, certain dividends on the stock. The branch lines needed within the region of the state net were, of course, to be constructed by the government. The companies were to receive the profits of the operation of the branch lines built by themselves, and, in case they advanced the necessary construction capital, they were to be reimbursed by the government, gradually until the expiration of seventy-four years, at which time, 1958, the conventions would all expire. In 1883 there were in operation in France about 17,000 miles of railways, and the conventions called for the construction of 700 miles by the state and of 6200 miles by the six big companies.

The conventions of 1883 abolished the distinctions which had existed since 1859 of old lines and new lines. The government now agreed to guarantee a minimum dividend upon the stocks of all the lines of the six companies—their customary dividend, which was fairly large. If the earnings of the railways were perchance large enough to create an excess after paying this minimum dividend, the excess should be divided, one-third to the company, two-thirds to the government.

The struggle between the state and the companies was now at an end. The conventions of 1883 formulated an effective plan of co-operative action between the two parties. The state was to have its own monopoly territory; and so was each company. There was, in fact, to be practically no competition between any of the railways. The traffic of France was to be apportioned between the different nets, of which the state operated one. Perhaps nowhere else in the world has the territory been so completely parcelled—nowhere else so complete a monopoly of railway transportation.

The conventions of 1883 have been highly favourable to the companies. They have meant fairly large dividends to the stockholders. Have these large dividends come from efficiency and economy of operation? Have they arisen from the fact that there has been absolutely no waste of competition? Have they meant the failure of the companies to extend their traffic, in order to build up new industries and commerce? Connected with the dividends of the French railways, certainly comes the suggestion that the companies have not constructed a sufficient mileage for the fullest development of French industries. Too much mileage is, as the United States has at

times known, an unfortunate condition; it means the evil of excessive speculation and abuses. Too little mileage means, on the other hand, an undeveloped people. The conviction comes upon us that, when the state made a guarantee of a fairly large dividend to the shareholders, it was really placing an obstacle to the fullest development of French industries and commerce.

Have these conventions been good for the French treasury? The answer has gradually through the years taken shape, that the government officials were in 1883 too hopeful as to the continued growth of business and consequently of the earnings of the railways. There were, to be sure, some reasons for such hopes. Though four of the six companies had, under the contracts of guarantee of 1859, asked from the state treasury annual sums ranging from 25,000,000 to 50,000,000 francs for the period 1865–79, by 1883 these calls had practically ceased; there had for three years been a continuous increase in traffic and income of operation. The conventions were, however, hardly signed, when a period of depression came upon the commercial and industrial world. The force of its burdens was especially strong in France, since the wine industry was then, because of the wide-spread destruction of the vines by the phylloxera, largely paralysed. A great decrease in the traffic and earnings of the roads was the normal result, and all the companies, except the Northern, one after another, asked for their guarantees. This condition continued more or less acute until 1892–93, since which date most of the companies have been able to pay something to the state by way of reimbursement for the advances made by it during the period 1883–93. The railways have

upon the whole been expensive to the French Government. With the exceptions of 1881, 1882, 1883, and 1905, the companies have called upon the state for some of the guarantees of interest or dividends. The total sum received by the six big companies from 1863 to 1905, for the lines of general interest alone, reached the figures of 937,242,483 francs, and by the secondary companies from 1888 to 1905 as much as 93,716,806—a grand total of 1,030,959,289 francs (about $206,191,000). And until the expiration of the conventions, in 1950–58, the state guarantees comparatively large dividends on the stock, as well as repays the companies for their total expenditures upon the construction of new lines. At that date all the lines become the property of the state, but until then the government is under considerable financial obligations to the companies.

The railways have, therefore, been a considerable burden to the state, and will continue for many years to be something of a drain upon its treasury. Have these burdens not been offset by the services which the railways have rendered to the state and the taxes they have paid? The financial burdens of the railways to the state were in 1908 approximately $52,000,000. The amount of the taxes collected from the railways was during the same year almost $32,000,000; and the services which the railways yearly render to the state in the administration of the posts and telegraphs, and in the transportation of soldiers, etc., are estimated at possibly $20,000,000. When we add to these amounts the sums which were in 1908 repaid by the companies, we reach a figure of possibly $62,000,000. The returns of 1908, while perhaps more than the average for any year since 1900, are not especially

exceptional. The services of the railways to the state and their taxes have for a few years at least been equal, if not greater than, their drains upon the public treasury.

The growth of the railway mileage under the operation of the conventions of 1883 may best be seen in these figures, which are given for typical years and for the lines of general interest only: in 1885, 18,600 miles; in 1908, 24,800 miles (40,000 km.). The lines of local interest, those which come under the control of only one department, have also grown; they have at the present a mileage of about 8122 (13,100 km.).

The French lines have been for the most part efficiently built, and the capital cost per mile of the construction has been much higher than in the United States, though much lower than in the United Kingdom. This cost has not materially changed since the conventions of 1883 went into operation, as may be seen in these per mile figures for representative dates:

1884	$128,000
1894	130,600
1900	133,800
1907	137,200

The earnings of the railway capital in the form of both bonds and stocks have not been very large. The figures which are here presented are, we think, representative ratios of the income to capital:

1845	5.6%
1865	4.8%
1885	3.8%
1908	4.0%

The larger part of this capital has been supplied by the bondholders at a rate of interest lower than the average of the above figures, and consequently the ratios of income to the stock have been higher than this average.

The French lines have for the larger part been operated with economy, as is suggested by the following typical coefficients of operation: in 1845, 49%; in 1865, 46%; in 1885, 54%; in 1908, 58%. The big lines especially, and the state net to a considerable degree, have been managed with economy so far as possible savings are concerned. They have not made the same effort to increase the volume of their traffic, to secure new traffic, as they have to make savings in the movement of the old.

Do the French possess a mileage of railways sufficient for their fullest development? A fairly adequate answer may be seen in the following figures of mileage per units of territory and population.

Upon the basis of the mileage of lines per 100 square miles of area, the French railways have had this growth: in 1876–77, 6.8 miles; in 1885, 9.8; in 1898, 12.7; in 1907, 14.2. In proportion to area, the French mileage is considerably less than the British.

The railway mileage per 10,000 population has been at typical dates: in 1876–77, 3.86 miles; in 1885, 5.39; in 1898, 6.7; in 1907, 7.6—a mileage per unit of population greater than that in the United Kingdom.

(*b*) *General Conditions of Traffic*

The problem of traffic, and consequently of rates, is, as we have seen, a fundamentally vital one to the

railways as well as to the state; it rests primarily upon the economic activity of a people and its natural resources. France is, generally speaking, not one of the leading industrial nations. Upon the basis of industries, she does not rank so far to the front as the United States, Great Britain, or Germany. Her agriculture and industries are, nevertheless, quite important.

In the manufacture of silk, France is a leader. Lyons is the greatest silk centre in Europe, and St. Étienne occupies the fourth place. The United States, Germany, and Great Britain only excel her in the annual output of pig iron, which was in 1906 about 3,319,000 tons. In the production of coal, France holds the fifth rank, with an annual output in 1906 of approximately 38,000,000 tons, as compared with 415,000,000 for the United States.

The yield of her farms and vineyards is also very important. She occupied in 1907 the third place in the production of wheat, with 370,000,000 bushels, as compared with Russia's 455,000,000 and the United States' 634,000,000. Grapes and wines also constitute a very considerable element of her railway traffic. The culture of wheat is distributed throughout the country. The making of wine is largely confined to the Southern parts, while the chief centres of coal and manufacture are in the North-eastern and South-central portions.

France, unlike the United Kingdom and Italy, has much international traffic. Most of this moves by steamer around Great Britain and Italy. In France much of it is carried overland by rail; some to and from Spain; some to and from Switzerland and Italy;

some to and from Austria, Hungary, etc. This international traffic is also highly competitive. The railways of Germany, Belgium, Holland, and France, all struggle for it, not to mention some of the great inland waterways.

In the matter of interior-domestic traffic, France has one characteristic in common with Italy, though not with the United Kingdom; there is still much of the mediæval spirit of self-sufficiency in many of her communities. The French are the embodiment of thrift and saving, and in many rural parts they are largely self-sufficient in their production and consumption of commodities. Such a spirit and condition have, of course, steadily been an obstacle to progress in the making of things on a large scale and in the development of a larger volume of long-distance freight traffic for the railways. Substantially the same conditions exist in the passenger traffic of the French people themselves. In France, as in Italy, much of the long-distance passenger traffic is that of foreigners —the tourists, those wanderers who have the attention of many nations because they spend money, if for no other reason.

In the interior-commodities traffic of France, the rivers and canals play a no inconsiderable part; and this competition has an important influence upon the development of the railway traffic and its rates. The length of the principal navigable waterways—free rivers, canalised rivers, and canals—is almost 7500 miles, upon which and a few minor ones the government has since 1814 expended for construction, improvement, and maintenance, almost $500,000,000. The state has already expended this vast sum, and it

continues annually to put into their maintenance perhaps as much as $4,000,000, besides the interest on the sum already invested in waterways.

The French waterways, unlike the British, have carried a considerable volume of traffic. They have, in addition to being maintained in an efficient condition, been protected by the government from severe competition on the part of the railways. The state has usually fixed the rates of rail carriage at practically 20% higher than those of the waterways; it has maintained these at a great expense to the public treasury for the specific purpose of competition and of relief to the railways from a superabundant traffic. The government has also placed heavy taxes upon the railways, but none upon the waterways. The comparative growth of the traffic on the waterways and the railways may be seen in these figures:

1880	The waterways, with a mileage of 6782, hauled 18,000,000 tons (met.). The railways, with a mileage of 14,315, hauled 80,774,000 tons (met.).
1905	The waterways, with a mileage of 7483, hauled 34,030,000 tons (met.). The railways, with a mileage of 24,459, hauled 139,000,000 tons (met.).

It is from this table seen that the waterways carried in 1905 about 20% of the total traffic, and that the average growth of the tonnage by water has been slightly more than that by rail. The same point is established if we consider the growth of the kilometric tonnage. During the period 1879–1906 that of the

railways (p. v.) increased 2.5% a year, while that of the waterways, the more circuitous routes, 3.2%.

The waterways serve, however, only a small portion of the French people. The very nature of the surface of their land makes it impossible, at least impracticable, for them to operate in the Alpine or central districts, or in those of the extreme North-west. The great bulk of the water traffic is divided into two sections: (1) that of the canals in the North-east, where there is much coal to be moved into Germany and to Paris; (2) that of the Seine, from Havre to Rouen and Paris, upon which as much perhaps as one-half of the coal consumed in Paris is hauled, and much of this traffic comes by steamer direct from England to Rouen. The traffic of these two sections, with only about one-half of the navigable waterways, amounts to almost 95% of the total water traffic of France.

The waterways transport only a few commodities. Their traffic is confined almost wholly to those goods which are usually of slight or medium value, and which are not seriously damaged by the conditions and delays of water transportation, as, for instance, coal, wood, stone, oil, wine, iron, steel, lumber, etc.

The French waterways, though the state has expended a vast sum upon them, have, therefore, served directly only a small percentage of the people. And their services have not been, as compared with the American transportation charges for such low-grade goods as the waterways usually carry, particularly cheap; their rates range from 1 centime per metric ton per kilometre to 2.5, or from .28 cents per short ton per mile to .70 cents.

For References, see Chapter VI.

CHAPTER VI

RAILWAY TRANSPORTATION IN FRANCE—(*Concluded*)

THE sources of the passenger traffic, in France as elsewhere, have been in business, or pleasure and culture. The density of this traffic has upon the French railways been far less than that of the British. The French are not to the same degree as the British, especially the English, a manufacturing and a mining people; they are not so densely concentrated in great industrial and commercial centres; they have never had such an industrial revolution, that has vitally changed the ratios of rural and urban population, as have the English. The passenger traffic of the French railways has, nevertheless, had a steady growth; and it has come to be comparatively dense, though still much less so than that of the British, which in 1900 was 27 as compared with 10 for the French. The steady development of this traffic may be seen in the per capita trips of representative years: 1 in 1855; 4.8 in 1881; 10 in 1896 and 1900. This was a ten-fold increase in forty-one years.

While the per capita use of the railways has had a steady growth, the average length of the trip has, practically, throughout the whole period 1855–1905 decreased, as may be seen in the following figures at typical dates: 55.3 kilometres (34 miles) in 1855;

32.9 in 1890; 28.9 in 1900; 30.3 (18.7 miles) in 1905.

(*a*) *Passenger Service and Rates*

The passenger traffic in France, as in the United Kingdom, has been for the most part divided into three distinct classes of service; and the charge for each class has differed considerably from that of another. Such a classification has been easily made, since in tastes and economy the French people have naturally grouped themselves into distinct divisions. In France, as in Great Britain, the most notable movement in the history of the passenger service has been that from the first class toward the third. During the period 1853–83 the first-class traffic decreased from 11% of the total to 8%, the second from 41% to 33%, while the third increased from 48% to 59%. The divisions of traffic were in 1905: 4.4% in the first class, 24.7% in the second, 70.9% in the third; and these percentages have not varied greatly for a good many years.

The rates of the passenger service upon the French railways have been practically all proportional to the distance, upon a kilometric basis. The system of a tapering rate, of a reduction in the charge per mile as the length of the journey becomes greater, has not come into use in France. The demand for such a system of rate making has not been strong, since the average length of the journey has been, as we have said, very short. These rates have all the time, more especially since 1846, been under the far-reaching control of the state. There have been statutory maxima prescribed in the conventions, rather in the

cahier des charges which have always been attached to the conventions or concessions. In 1859 these *cahier des charges* were made most exhaustive as to the rights of the railway companies to make charges; and, while new conventions were in 1883 formulated and signed by the six companies and the state, the *cahier des charges* of 1859 have remained in force to this day. The maximum rates prescribed in these documents for the three classes of the passenger service, and which have been the standard of charges beyond which the companies could not legally go, were: 10 centimes per passenger per kilometre (3.1 cents per mile) for the first, 7.5 for the second, 5.5 (1.7 cents per mile) for the third.

Such have been the legal maxima. What have been the actual rates? We are unable to ascertain just what these have at times been. During the period 1879–84 the actual normal rates were: 11.2 centimes per passenger per kilometre for the first, 8.4 for the second, 6.16 for the third. These rates included a state tax of 23.2%, levied according to a law of 1871. They were slightly lower than those in force at an earlier date. The tax upon tickets was in 1892 reduced to 12%. The actual normal rates were now made uniform for all the lines and again slightly reformed. The second class was reduced 10%, to 7.56 centimes per passenger per kilometre; the third, 20%, to 4.92. And these were the rates in force in 1900, and again in 1909: 11.2 centimes per kilometre (3.48 cents per mile) for Class I, 7.56 for Class II, 4.92 (1.53 cents per mile) for Class III, all including the tax. An allowance for free transportation of baggage up to 66 pounds has been made.

The actual rates as given above have been the standard ones. There have, however, been numerous special tickets—season, return, etc.—; and the average rate for all the classes has been less than that of the standard for the third. The decline in this average charge has been important, as may be seen in these figures taken from comparatively representative years:

1855.....	5.91	centimes	per kilometre	(1.85 cents per mile.)
1865.....	5.53	"	"	"
1875.....	5.24	"	"	"
1885.....	4.66	"	"	" (1.45 cents per mile.)
1895.....	3.85	"	"	"
1905.....	3.69	"	"	"
1908.....	3.56	"	"	" (1.10 cents per mile.)

The French rates are, therefore, considerably less than the British, but the service, especially in speed, is, we think, not so efficient.

(*b*) *Freight Service and Rates*

The commodities traffic of the French railways is, as upon practically all the railways of the world, more important than the passenger. In 1900, and this may be taken as a fairly representative year, the passenger service yielded 44.7% of all the income, while the freight service's portion was 53.6%, with 1.7% from miscellaneous sources.

The freight service has been more important than the passenger from still another point of view—its complexity. Its classification has been a most difficult task. The variety of commodities has been great. The state has in France practically from the beginning exercised a powerful influence over both classification

and rates. The concessions made in 1842 provided for a classification into four groups of traffic, and for each class they prescribed statutory maximum rates. For a time the companies collected rates practically equal to these maxima, but competition, rail and water, soon brought a reduction in the actual charges. The French actual rates have, however, never been as much below the maxima as the British or American. Some discriminations occurred, as they always do under competition, and these led to a greater and more far-reaching regulation by the government—the system of the *cahier des charges* of 1857–59. The whole programme of the state's control over rates was now elaborately formed, and uniform standard maximum rates were prescribed for all the big companies.

These maxima have, as we have said, remained unchanged to the present. The companies have in their actual rates made variations from these maxima; for practically all forms of traffic except carriages and animals they have usually offered rates lower than the maxima. The maxima have been uniform for all the companies, and the fact that no other rates than the maxima may be made by the companies without the approval of the Minister of Public Works, who for the sake of justice to the shippers and of finance to the government supervises them, has meant a comparatively rigid system of actual rates upon a kilometric basis. The minister has allowed numerous variations from the fixed standards, for the purpose of fostering certain local industries or the shipment of commodities into or away from France. Lower rates have, for instance, been allowed upon the export traffic, in order to promote the interests of French

ports as against foreign rival ports. At times reductions in the standard rates have also been allowed upon the import traffic, to make it possible for the French ports to maintain their lead in their competition with their rivals. All these variations may, however, exist only by the permission of the minister, and usually only after an elaborate investigation.

The French classifications and schedules of rates have upon the whole been most complicated, perhaps more complicated than those of any other country. The rates have been based upon what the traffic would bear—upon the value of service; and this is everywhere a fairly complicated principle of rate making. There were in 1879, when a reform, for the purpose of securing greater simplicity and some reduction in rates, was inaugurated, as many as 1854 special tariffs. The government now established six classes of freight traffic for the slow (*petite vitesse*) service, uniformly applicable to all of the companies; and formulated standard rates for each class, with variations according to the nature of the goods, their bulk, and the distance of their haul. For the fast (*grande vitesse*) service, the standard rates were now made uniform, though its traffic remained unclassified. Further uniformity and simplification were made in 1892 and 1895.

The actual classifications, and especially the actual rates, did not, however, by these reform acts become entirely uniform. The rates had little by little been formulated by each system, without any special care for uniformity with those of another company. The general maxima as prescribed in the *cahier des charges* had, as we have stated, no great influence

over the actual rates for many of the commodities. The classifications and schedules of rates have, therefore, in reality continued, to the present, complicated. So great is their complexity, that the shipper must be an expert in the intricacies of railway transportation or ship his goods through forwarding agencies—a thing which most of the small shippers regularly do. A further comment upon the complexity of the actual classifications and rates is found in the fact that the book of schedules for the fast service contains 986 pages, while that of the slow traffic has 1726.

To give a complete history of the actual rates would require too much space, even if we could ascertain it; and we shall here give only the chief facts as to these rates at certain representative periods.

The rates, including taxes, for all merchandise hauled at the fast speed were in 1884, upon the lines of one of the efficient companies, the Eastern, as follows:

Up to 200 km.,	40	centimes per ton (met.) per km.
From 200 to 300 km.,	38	" " " " " "
From 300 to 400 km.,	35.8	" " " " " "
Over 400 km.,	33.6	" " " " " "

The fast service rates have since 1884, especially since the revision of 1892, had a decrease, though not an important one, as may be seen in these figures of 1903 and 1908 for all the systems:

(a) For shipments of merchandise not exceeding 40 kg. (88 lbs.)

Up to 200 km. (124 miles), 35 centimes per ton (met.) per km.
From 200 to 300 km., 32 centimes per ton (met.) per km.
. . . . . .
From 800 to 1000 km. (496 to 620 miles), 28 centimes per ton (met.) per km.
Over 1000 km., 25 centimes per ton (met.) per km.

(b) For shipments of more than 40 kg.

	Other Mdse.	Food Products.
Up to 100 km.	32 centimes per ton per km.	24
100–300 "	30 " " " " "	22.5
300–500 "	28 " " " " "	21
500–600 "	26 " " " " "	19.5
1000–1100 "	16 " " " " "	12
Over 1100 "	14 " " " " "	10.5

These rates are based upon the kilometre, but taper with the length of the haul up to a certain limit. This system of the tapering rate or *barême*, as it is called in France, has almost universal application in the freight service of the French lines. Each *barême* is supposed to be sufficiently diverse to render service to the different needs. The decrease in the rates for food products has, however, not been sufficient to enable many of them to move a long distance. The milk supply of Paris, for instance, comes almost wholly from within a radius of about seventy-five miles, as compared with 300 miles or more for New York, and is consequently expensive.

The legal maximum charge for the fast service has been 36 centimes per ton per kilometre; and prior to 1892, when a general revision of classifications and rates was made, a state tax of 23.2% was levied upon this service and was consequently allowed to be shifted to the shipper. It is, therefore, seen that the actual rates have been lower than the maxima.

What have been the actual rates for the slow freight service? From 1872 to 1881 these rates

changed only slightly, toward an increase, with an average of perhaps 1.63 cents per short ton per mile; this average had by 1885 become practically 1.65. The class rates of this period may be seen in the following figures taken, in 1885, from one of the representative companies, the P. L. M., and for two of its six classes of traffic:

	Class I	Class V
Up to 25 km.	16 centimes per ton (met.) per km.	.8
From 26– 100 km.	16 " " " " " "	8
" 101– 150 "	15 " " " " " "	8
" 151– 200 "	15 " " " " " "	7
" 201– 300 "	15 " " " " " "	4
" 301– 500 "	14 " " " " " "	4
" 501– 600 "	13 " " " " " "	4
" 601– 700 "	12 " " " " " "	4
" 701– 800 "	11 " " " " " "	4
" 801– 900 "	10 " " " " " "	4
" 901–1000 "	9 " " " " " "	4
" 1001–1100 "	8 " " " " " "	4

In 1885 perhaps as much as 80% of all the slow freight moved at commodity or exceptional charges, not at the above normal class rates. The commodity rates were lower than the normal; they were for large shipments, while the class rates were for small piece lots. The exceptional rates for piece shipments were because of extraordinary conditions. There were, however, no discriminations in rates. All variations from the standards must be approved by the Minister of Public Works, and he performed his tasks effectively.

In 1892 and again in 1895 there were changes in the schedules of rates and classes, with the view of greater uniformity between the companies. At these dates,

as at earlier ones, uniformity in the actual rates and classes was, however, far from complete. There were then, and have been to this day, many commodity rates for carload lots, lower than the normal class rates. There were then, and have continued to be, important variations in the rates for small piece shipments. The French have been exceptionally efficient makers of high value articles, as, for instance, fine laces and textiles, and these cannot be effectively shipped in carload (5 or 10 ton) lots. The government has, therefore, from the beginning, granted permission for exceptionally low piece rates upon such traffic whenever it is carried for export. The French railways have also taken some part in the international traffic of Western Europe, and in this they must compete with the railways of Germany, Holland, and Belgium, as well as the great waterways. Such a traffic situation has demanded special consideration, and has resulted in the concession of exceptionally low piece and carload rates. Variations from the normal charges have, therefore, been numerous, and they have lacked uniformity among the companies. In 1910 they were, however, all codified into one book, which was to be common for all the great systems.

What changes have been made in the actual class rates since 1885? The maxima of the *cahier des charges* have, as we have seen, remained unchanged. Have the actual class rates remained the same? The following table of the general tariff as charged in 1908–09 by the P. L. M., which was still representative of the big companies, clearly answers:

	Class I	II	III	IV	V	VI
Up to 25 km.	16 centimes per ton (met.) per km.	14	12	10	8	8
26– 30 "	16 " " " " " "	14	12	10	8	4
31– 50 "	16 " " " " " "	14	12	10	8	4
51– 100 " (62 miles)	16 " " " " " "	14	12	10	8	4
101– 150 "	15 " " " " " "	13	11	9	8	3.5
151– 200 "	15 " " " " " "	13	11	9	7	3.5
201– 300 "	15 " " " " " "	13	11	9	4	3.5
301– 400 "	14 " " " " " "	12	10	8	4	3
401– 500 "	14 " " " " " "	12	10	8	4	3
501– 600 "	13 " " " " " "	11	9	7	4	3
601– 700 "	12 " " " " " "	10	8	6	4	2.5
701– 800 "	11 " " " " " "	9	7	5	4	2.5
801– 900 "	10 " " " " " "	8	6	4	4	2.5
901–1000 "	9 " " " " " "	7	5	4	4	2
1001–1100 " (682 miles)	8 " " " " " "	6	5	4	4	2

These rates of 1909 were exactly the same, for Classes I and V, as those in 1885. And these rates of the P. L. M. are, with the slightest variation, the present rates of the other large systems. They all have as their initial rates 16, 14, 12, 10, 8, and 8 centimes per ton (met.) per kilometre; the first four classes have a decrease of rate at 101 km.; the fifth, at 151; the sixth, at 26. They all have for distances of 1001–1100 kilometres rates as follows: 8, 6, 5, 4, 4, and 2 centimes.

The decline in the actual rates as indicated by the changes in the normal class charges is, therefore, very slight, nothing since 1885. When, however, all the rates for "class," "commodity," and "exceptional" shipments have been averaged, we find that there has been an important decrease, as is shown by these average charges for typical years: 11.12 centimes per ton (met.) per kilometre in 1845; 7.65 in 1855; 6.08 in 1865; 6.06 in 1875; 5.94 in 1885; 5.16 in 1895 (1.45 cents per short ton per mile);

4.52 in 1905; 4.29 in 1908 (1.21 cents per short ton per mile).

While the decline in the French rates has been very important, they are still relatively high, especially high as compared with those in the United States. The length of the haul is always a significant fact. This has upon an average been short in France. In 1860 it was 134 kilometres (83 miles); in 1880, 128; in 1905, 127 (78 miles). There has been practically no long distance haul of grain, and little of coal and wine. Though French coal is needed in the northern lowlands to compete with the English, and though considerable quantities of southern wine could be profitably sold in Northern France, the railway rates for such distances have been too high for their transportation. Length of the haul influences rates, but the rates in turn profoundly affect the length of haul. The principle of a kilometre basis has had great weight in the French rate making. There have, to be sure, been fairly important variations from this basis, but still they have not been sufficiently great to stimulate a large volume of long distance goods traffic. These variations, whether in the "commodity" rates or the "exceptional," have, moreover, been secured after a long and cumbersome investigation. The railways have, because of the rigid and inelastic control of the state, been slow to make experiments with rates in order to develop new business; and too the fact of their guarantee of dividends from the state treasury has, we think, been a retarding force. For these and other reasons, the French freight service has not been as efficient as it might have been.

(c) *Ideals and Machinery of State Control—Management*

State control of private operation has been in France remarkably efficient, though very inelastic. The whole scheme of railways was at the beginning laid out by government engineers; and trained engineers and inspectors have through all the years watched their development and management. The companies have held in their right of possession only part of the roadway, and this only for a limited period. Their rights, powers, and privileges have all been most elaborately and minutely set forth in the conventions, or the *cahier des charges* which have been attached to them. That these conventions might reserve to the government every possible right of control over the companies, there has been the requirement that all concessions which have been made by the minister to lines of more than twenty kilometres should be approved by a law before construction could begin. The state control of private lines in France has been all-comprehensive. It has covered all important matters of finance and of operation, whether technical or commercial; the *cahier des charges* of 1857 and 1859, which have come down to the present without change, are most remarkable documents for their scope and completeness. State control of private lines in France has been as great as state control of public lines in Germany. It has been more rigidly uniform; the state may upon its own lines allow more variations, upon private lines, fewer.

The Minister of Public Works has been the all-powerful factor in the machinery of this control. He

has been absolute in all matters of public safety; over the industrial and commercial phases his power has been slightly limited. He has never been able to dictate the charges. He could only place a veto upon those proposed by the railways. The power of making rates in the first instance was, in the conventions of 1859 and 1883, specifically granted to the companies. This power was, however, restricted by two provisions: (1) that they should never be larger than the statutory maxima of the *cahier des charges;* (2) that they must always be approved by the Minister of Public Works.

The machinery of state control through an administrative body dates back as far as 1842. In this year the foundations were laid by a law, the provisions of which were so important that they have come down to the present with only slight modifications. An Act of 1845 and an Ordinance of 1846 more completely defined the powers and duties of this body. So comprehensive was the Ordinance of 1846 that it was fully reproduced in an important decree of 1901. The chief officer in this body has been the Minister of Public Works. He was by the early laws authorised to exercise direct control over all phases of the railways of general interest, whether private or state. Since an increase in the rates was a matter of interest to the public, and a decrease, a vital point to the treasury, which must bear the burdens of the state's guarantee of interest on the bonds or of dividends on the stock of the companies, the minister was given the power of confirmation of all changes in them. The powers which were given him in the early laws were more clearly defined in the *cahier des charges* of 1857 and 1859 and in ordinances covering the period of 1846–1901.

Seven departments, which have been attached to the Ministry of Public Works, have performed the tasks of actual general control—one department for each of the big systems, including that of the state. These departments, which are of recent formation, being organised according to a presidential decree of 1895, have devoted their energies largely, exclusively since 1901, to technical matters. A Director of Control was appointed as the chief officer of each department—of each system of lines. He or a representative of his has taken part in the general meetings of the company, over which he has the supervisory powers; he has also been present at the sessions of any commissions or committees which have by the minister been appointed to investigate the conditions of the company's lines and their operation.

Prior to 1901 the supervision of the commercial phases was in the hands of the Director of Control. There was made at that date a separation into two departments: (1) technical control, (2) commercial control. The newly created department of commercial control was to devote all of its energies to an examination of the economic phases of each system of lines, to study the rates and their influence upon traffic. A Director of Commercial Control was made the chief administrator in this department, and his tasks were confined exclusively to the commercial aspects of railway transportation; all other phases were left to the Director of Control.

There has also been attached to the Ministry of Public Works a department of financial control—an *Inspection des Finances*. The vital relationship existing between the companies and the state demands

that all points of finance should be closely supervised by the minister. The state must make good its guarantee of interest and dividends; it might participate in the profits. This department has inspected the books of each company. Before the company can issue additional stocks or bonds, the minister must approve the proposition as a whole; and the department of technical control must approve any expenditure for the construction or improvement of lines.

These three departments of technical, commercial, and financial control, though they have been the most important elements in the machinery of the state's supervision, have not been the only ones. There have been attached to the Ministry of Public Works or to these departments advisory councils. These have been: (1) the General Council of Bridges and Roads, (2) the Commission of Audit for Railway Accounts, (3) the Technical Advisory Council, and (4) the Commercial Advisory Council.

The first council has investigated the proposed extensions of lines, and advised the minister upon them. The auditing commission has determined the amount of the guarantee to be paid to the companies, as well as the amount which should accrue to the state treasury from the profits of operation. The Technical Advisory Council, which has been composed of engineers and representatives of the ministers of public works, war, posts, and telegraphs, is a comparatively new body. It was first organised in 1900 and 1903, and it was slightly reorganised in 1906.

The most important of these advisory councils is per-

haps that of commercial control, which was organised in 1878 and reformed in 1898 and 1907. It has taken under consideration all matters of the improvement of the service, in order to increase the traffic. Its most significant work has, however, been in the consideration of the rates which the railways have submitted to the Minister of Public Works for confirmation. Cases of emergency export rates may be confirmed by the minister himself, and are consequently disposed of quickly. But in all other rates the problem of confirmation has been a difficult and long-delayed one. These must be thoroughly investigated, and the advisory council of commercial control must pass judgment upon them. This council must also be consulted as to the interpretation of the laws and ordinances, and of the clauses of the *cahier des charges*, which deal with commercial operation.

In the composition of the Commercial Advisory Council, two elements are well represented: (1) that of the administration of the government, (2) that of the commercial and industrial interests and the general public. Agriculture, industry, and commerce, as well as the legislature, all have their representatives in this body. Its membership has, therefore, become very large; and, to facilitate its work, a committee of sixty-eight members has been appointed to perform its more regular duties. This council has, from its beginning in 1878, been of tremendous influence upon classifications and rates. It has been the real body that has controlled them. Its most important work has, however, been not to make rates, but to prevent discriminations in them—to maintain the maximum justice in the administration of the rates which

are initiated by the companies under the statutory maxima.

The management of the state net has, like the control of the private companies, been in the hands of the Minister of Public Works. Its actual operation has, however, been managed by a Director of Operation. He, just as the directors of control of the private lines, has been assisted by other bodies. In all matters of finance, the two houses of the legislature have been the controlling factors; the Chambers have voted yearly upon all points in the state railway budget, whether for operation or maintenance.

The ideal of state control has been to secure a slow but certain development of the lines, and to secure the maximum of justice to all parties in their operation. The power of this control has all the time been strong and effective. It has, however, been too much inclined to act with rigid uniformity. The British control has worked for practical expediency, with as much justice as possible under the actual conditions. The French has, on the other hand, striven for maximum justice, with slighter care for practical expediency. The British railway history has for the most part been one of the minimum interference on the part of the state; the French, one of the maximum.

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CHAPTER VII

RAILWAY TRANSPORTATION IN ITALY

NO other country has, perhaps, had quite the variety of railway experience as Italy. The Italian railways for this, if for no other, reason deserve very careful consideration. Railway management in Italy has, moreover, had the most exhaustive investigations. The Italian reports have been marvels of comprehensiveness.

When the first railway came to Italy, she was but a "mere geographical expression"; and in Italy, as elsewhere, it came to mould and change the conditions and problems of life. She was then but a collection of independent states, with much of the form and spirit of mediæval separateness and self-sufficiency. It has been one of the tremendous tasks of the railways to bind these mediæval city states into a unified commonwealth and people.

Development of the Lines—State or Private

A decade had practically passed since the railway came to the United Kingdom before the Italians were attracted to this new form of transportation and communication. The first line, one from Naples to Portici, was begun in 1835–36, but was not opened for

traffic until in 1839. Its concessions came from the Neapolitan government, and part of its capital from the French. The Lombardian government was, in 1837, the next to make grants to railway companies. These first lines were for purely local use, largely for passengers who travelled for pleasure. The middle of the century had come before this form of transportation was seriously considered as a means of conveying commodities. By this date practically all the states had made concessions to companies, and something had been done toward the building of local lines. The first railway of any important significance, as to length or traffic, was ready for operation by 1857–58 —a line between Milan and Venice, of about 190 miles. This important line was the product of both private enterprise and state aid; to the completion of it the Austrian government, largely for military reasons, gave assistance. Austria was also at this time interested in a line which should connect the cities of Central Italy, and to secure this the state gave exemptions from taxes and a guarantee of interest on the bonds for its construction. The Piedmont government was also more or less active during the decade, 1850–60; a line from Turin to Genoa was opened by 1855—the work of private capital and state assistance.

Prior to 1859–60, when the Italian kingdom was formed, the lines had all been local and disconnected. The railways of one state did not make connections with those of another state. There was no national scope or idea in any of them. With the coming of political union in Northern and Central Italy came the spirit of united railways. The lines constructed before this date, whether by the state, or by private

enterprise with assistance from the state, had the general direction of east and west—counter to the natural channels of trade. The states were, in fact, opposed to the building of lines north and south. These would make through channels of transportation and communication—the very thing which the states did not wish, since it would mean the destruction of their long-cherished separateness. Had the various states been willing to abandon this spirit of local independence, private capital would perhaps before 1860 have constructed at least one through line between the North and the South of Italy.

When the new kingdom was created, there were but 2201 kilometres of railways (1365 miles), distributed as follows: in Piedmont—Sardinia, 850; in Lombardy —Venice, 607; in all the other states, 744. Some of this mileage was owned by the states, some by private corporations. Now, under the guidance and aid of the new government, consolidation became active, and more energetic effort was put forth to complete the lines in process of construction, even though Italian capital was very scarce. By 1865 the mileage in operation had grown to be more than 2400, and that in process of building was perhaps as much. During the first years of the new kingdom, the Austrian control of the lines in the northern and central portions came to an end. The Italian Government purchased the stock which the Austrian state had in these, and assumed the guarantee of interest on the construction bonds. It was not, however, until 1875–78 that the Italian kingdom had brought to completion this transfer of control and aid.

Whether this new state should become the adminis-

trator of the railways, soon became a vital question. Italian capital was, as we have noted, very scarce. The government wished to avert the condition which would necessarily come in case foreign, especially Austrian and French, capital should be invested in the railways, since Austria and France had been the chief obstacles to complete Italian unity; and the local states had from the first played the important rôle in railway construction. A law was, after much consideration, enacted in 1865, which answered for a time this question of state operation. It ordered the sale of the government lines to the companies. It created four companies for the Italian–Sicilian lines, and one for the Sardinian, to which were conceded the operation of all the existing mileage and the construction and management of the new lines which should be needed. The four companies for Italy and Sicily were: (1) the Upper Italy, to which were conceded the lines of Lombardy, Piedmont, and Venice, though the government of Venice did not become Italian until in 1866; (2) the Roman, to which were conceded the lines of Liguria, Tuscany, and the Roman Provinces; (3) the Southern, which was to control all the lines of the mainland south of Rome except in Calabria; (4) the Calabrian–Sicilian.

This answer in favour of private ownership and operation, though perhaps meant to be only a temporary one, relieved the new government of a large financial burden, which it was scarcely in a position to bear. The government secured the unity of the lines without bearing the financial burden. It made, however, one grave error in the creation of this unity. It consolidated the competing lines and not the connect-

ing ones; it really divided Italy east and west into four almost distinct territories, when the conditions of transportation demanded a through-service from north to south. The new state was, we think, wise in conceding ownership and operation to the companies, but it was unwise in its division of their regions of operation. The state received a considerable amount of cash—perhaps as much as $40,000,000—, when it was in serious need of it. It did not now need to spend public funds for railway building, though it must, of course, continue to bear the burdens of its guarantees of interest on the bonds of most of the lines.

The railways were not yet upon a basis of solid prosperity and efficiency. The Italian people were poor; they were neither large producers of commodities nor large consumers of them; their spirit of economic self-sufficiency meant no great demand for traffic in goods between the various communities. Three, of the five companies, became at an early date involved. The lines of one company were, as we have seen, separated from those of another, and it was difficult, if not impossible, to develop through-traffic. They were so completely isolated, and the various states were still so largely independent of each other in matters of business, that the companies, in spite of the fact of their large subsidies from the state, could not prosper. It was necessary, in addition to building many new connecting lines, to put the old ones upon a more efficient footing. Capital was scarce, even more so than usual. The tasks of the alliance with Prussia and the War of 1866, which secured from Austria the Province of Venice, had consumed considerable capi-

tal. The Calabrian–Sicilian Company found itself in 1867 unable to meet its obligations, and its ownership was taken over by the government in 1868; and between this date and 1880 two more of the four mainland companies were absorbed by the state. The Roman became embarrassed in 1868. The state, because of its financial inability to purchase the lines of this company, conceded them for a time to the Upper Italy Company. It did not become the owner of them until in 1880, and did not take final possession for two years more. The lines of the Upper Italy Company, though they had been more prosperous than the Calabrian–Sicilian or the Roman, were, for political reasons, purchased by the state in 1875–76, and taken into state management in 1878.

The Southern only was left. Its lines were not particularly efficient or prosperous, though they might have been but for the restrictions which had been placed upon them by the contracts for subsidies from the state. Their power to reduce their rates, in order to develop new traffic, had been severely limited. The government in 1874 and 1876 made efforts to become the owner of these lines, since their subsidies were a heavy burden upon the public treasury, but for various reasons Parliament refused to approve such action on the part of the administration, until in 1907.

The practical failure of two of the four companies and the financial burdens of all of them upon the state's revenue had brought to the front the idea of complete nationalisation of all the railways. There had, moreover, been another purpose for state purchase. Feelings of hostility toward Austria had been intense. The Italian railways must be made abso-

lutely independent of the Austrian capitalists. The new kingdom of Italy became complete, in 1866, when Venice was won from Austria, and in 1870, when the Roman Provinces were freed from the control of the Pope and France.

By 1878 the larger portion, about three-fifths, of the total mileage of approximately 5100 was in the possession of the state. For the administration of this net, special machinery was created. The Minister of Public Works was given general administrative charge. The actual management was placed in the hands of a Council of Railway Administration, which was composed of a president and six councillors. Government operation soon, however, proved itself unsuccessful, though it was vigorously carried on, and though it brought an expansion of the lines. It was in fact not expected to be successful. The same law that created its machinery of administration appointed a parliamentary commission to investigate the whole question of state or private operation. The administration of Minghetti and Spaventa, Conservatives, which made the purchases for the state, had meant that the management should be through the companies acting as agents of the state. The Conservative ministry was driven out of power by the moderate Radicals, in 1876. Parliament was, under the existing conditions, opposed to the state operating the lines which had recently been purchased by it. Minister Depretis, in order to carry out the wishes of Parliament, formulated a scheme of private operation. His scheme proposed that the government lease for a term all the state lines to two companies, and that they pay rent, as well as a purchase price for the state's

rolling-stock. This plan was, however, not for the time adopted. A new ministry of extreme Radicals came into power in 1878, and the whole matter was again at sea—was referred to a commission to investigate.

The commission put forth most energetic efforts to ascertain the facts of state and private management, in Italy and elsewhere. It laboured hard, and with the utmost system, for almost three years; and it cost the public treasury more than $27,000. The work of its remarkable investigation, probably the most important ever made upon the subject of railways, resulted in seven large quarto volumes; three of the oral testimony; three of a digest of the written answers to the questions sent to all parts of Italy and of documents; one of the report or recommendations of the commission. The digest of written answers and the documents, which cover all phases of railway management in many states of Europe, are especially valuable. The actual experiences of state operation, the theories of rate making and their influence, and the various forms of state regulation receive full consideration. The report, made in 1881, was overwhelmingly in favour of a lease of the state lines for a term of years to private corporations. It in fact made the same recommendations as those of the Depretis ministry, which were in 1878 rejected by Parliament.

The commission contended that, while the state might own the lines, it was not its proper function to operate them. In support of such a position, it offered the following facts: (1) that the state does not perform many services more efficiently or cheaper than private enterprise—a most vital point; (2) that state operation

of railways is really more expensive than private operation—a conclusion which the commission thought, after long consideration, was fully warranted; (3) that the state is more disposed to place burdens, as, for instance, taxes, upon industries than private enterprise, that the government is more inclined to burden than to foster the development of industries by offering efficient services; (4) that the danger of political manipulation of the service is really great.

The commission found the actual conditions in Italy very unfavourable. The operation by the five companies had maintained neither an efficient equipment nor an efficient service. They knew not at what time Parliament might vote to inaugurate a system of state management. Their credit had for the larger part been poor; they had operated under conditions of separation of lines and systems, and of inactivity in agriculture and industry. The management by the state of its own lines had been notably inefficient and unsuccessful. The credit of the state lines, though they were largely in Northern Italy, the most prosperous part, was low; the government was attempting to perform many functions upon an income from a people whose natural resources had long been well-nigh exhausted, and whose industrial intelligence had never been great. Taxes were very high, and the revenue from them was comparatively slight. The lines of the Southern Company were still unpaid for. The state had in fact forfeited its right to purchase them at the old favourable price, and, in order to control them without ownership, it must pay the stockholders annually a larger sum than the interest on such a price. New lines were imperatively

demanded for a growth of Italian industries and commerce.

The fact of these conditions had great weight toward the acceptance of the recommendations of the commission. A bill was finally, in 1884, presented to Parliament, which was now in favour of lower taxes and fewer state activities, by the man who had acted as the secretary of the commission, and who in 1884 had been appointed Minister of Public Works. This bill, which was enacted into a law, provided for the lease of the state's lines, perhaps until it was able to operate them, to private corporations. It created three such companies, to which the state lines were leased and most of the private lines conceded: (1) the Mediterranean, (2) the Adriatic, (3) the Sicilian. The lines conceded to the Mediterranean and Sicilian companies were owned by the state. The Adriatic was given the control of some state lines and of the lines of the Southern, one of the companies created in 1865, and upon which the state still paid subsidies. These companies held the concessions of operation for at least twenty years, possibly forty or sixty. At the expiration of each period of twenty years, either party —the state or the companies—might withdraw from the contracts. These conventions, unlike those of 1865, partitioned Italy into three natural traffic divisions; the systems of the mainland were now to cover the whole length of Italy from north to south. Each company was, after the French method, given a practical monopoly—a territory of its own.

The larger part of the railway mileage, which was in 1885, when the new scheme went into force, about 6240 (10,066 km.), was distributed among these three

big companies. They were given control of the operation of 5805 miles (9364 km.), divided as follows: (1) the Mediterranean, 4236 km., (2) the Adriatic, 4515, (3) the Sicilian, 613. Small companies held the concessions for the remainder, but these were largely incorporated into the three systems by working agreements between them and the big companies. Thus for twenty years, until 1905, most of the lines were operated; and during this period the mileage of the three big companies increased, to practically 7950 (12,827 km.)—an important expansion, though not so great as had been expected.

The companies, at the beginning of the conventions, paid the state for the rolling-stock 275,000,000 lire (about $53,000,000)—a sum sufficient to make some needed improvements and extensions,—on the condition that, at their expiration, the state should repay the companies. The companies agreed to maintain this equipment, in exchange for the 5% interest which the state should pay to them on its original cost. All the ordinary operating expenses, including those of the maintenance of roadway and structures, were assumed by the companies. The extraordinary expenses, whether for maintenance of way or permanent structures, fell upon the state, which was the owner of the plant. The division of these expenses was, of course, a most difficult matter—one liable to much dispute; and so was the division of the earnings of operation.

Of the gross earnings of each of the two mainland companies up to a fixed minimum—100,000,000 lire for one, 112,000,000 for the other—, 62.5% should go to the companies for ordinary expenses and profits,

27.5% to the state for the use of its lines, 10% to a reserve or "property increase" fund of the state. This reserve fund should be used for extraordinary repairs, renewals of rails and rolling-stock. Whenever the gross earnings of these two companies became larger than the fixed minimum, their division was to be as follows: (1) if the excess above the minimum was as much as 50,000,000 lire, 56% should go to the companies, 28% to the state, 16% to the reserve fund of the state; (2) if the excess was above 50,000,000 lire, only 50% of it should be distributed to the companies, while 6% of the state's portion should be used to make reductions in the rates, at the discretion of the government. To the Sicilian Company, because of the smallness of the traffic of its lines, a much larger portion of the gross earnings should be distributed. Its initial minimum of gross receipts was fixed at 8,500,000 lire, and the company should receive from 82% to 72% of this amount. There was also to be a division of the dividends, as well as gross receipts. Whenever the dividends on the stock should exceed 7.5%, one-half of the excess should go to the public treasury.

Thus the state was to receive a portion of the earnings and profits of operation, and to bear a part of the expenses. It was, in addition to bearing a part of the expenses of the old lines, to pay to each of the companies an annual subsidy of 3000 lire per kilometre (about $933 per mile) of the secondary lines constructed by it.

The conventions were most elaborately drawn, but their success depended upon the actual conditions of commerce and industry, as well as upon the efficiency of the companies' operation. The formulators of the

conventions relied much, by far too much, as was later proven, upon a future growth in the traffic and its net financial returns. They believed that such a growth must come. They allowed too many elements of error to enter into their forecast. The earnings of operation did not continue to increase; they, in fact, decreased soon after 1885. The improvements, which were to be made from the increase in the earnings, could not be made. The state must pay for them, if the needed improvements were made; it was the owner of the plant. The public treasury was, however, carrying too great a load.

Another element of error was in the provision that the government should approve all rates. It was the original intention of the authors of the conventions to allow the state only the power to confirm rates, not that of their making in the first instance. Popular demand for a decrease of rates was so strong, that the government in reality made them, and, out of the public treasury, paid the companies the difference between the rates fixed by them and those of the state's making, even though such action was destructive to the efficiency of the railway management and harmful to the taxpayer. The state again interfered with the efficiency of the companies, when it allied itself with the employees, who were about to declare a strike. An efficient and economical administration was, therefore, impossible; and the state did little to cause improvements. It, in addition to placing obstacles in the way of the management of the companies, allowed them to neglect the maintenance of their equipment and service.

Such a situation could not possibly be satisfactory

to either party. Both were ready enough in 1905, the first time that they could withdraw from the conventions or modify their provisions, for important changes in their relationship. Their relations had, to be sure, been agreeable, but they had not induced efficiency of plant or of service. The conventions of 1885 had been a fiscal burden to the state, to the extent of $2,000,000 in 1901, though it had not maintained the property in a condition of efficiency. The companies had received fair dividends on their stock. Dr. C. Bresciani has calculated that the average dividend of the Mediterranean Company was for the period 1885–1901, 5.15%, of the Adriatic, 6.53%, and of the Sicilian, 6.63.[1] And the dividends for 1901–04 continued at a fairly high rate: for the Mediterranean, an average of 3.3%, for the Adriatic, 6%, for the Sicilian, 6.8%.

It was under the pressure of such a situation that a law was, on April 22, 1905, passed by Parliament, which made provision for the immediate return to state operation. The bill, though a vitally important one, received little serious consideration by Parliament. Many of its members were strongly inclined to the theory of socialism, though they had no definite programme. They were ready to make an experiment with socialised railways. It was, however, not necessary for Parliament to act upon this vital matter in the dark, since practically all of the report of a royal commission, which had in 1898 been appointed to consider the whole case of the railways, was before them. This commission had considered the question whether the effects of the conventions of 1885 made it

[1] *Archiv für Eisenbahnwesen*, 1905, pp. 1017–73.

advisable for a continuance of private operation, or for a return to state management. It had made a most thorough-going examination—a work in many respects comparable to that of the famous commission of 1878–81. Its report, which appeared in 1903–06, filled nine large quartos, and covered all possible phases and every possible question of railway management in Italy and elsewhere.

The law of 1905 was only provisional; in 1907 a more definite one was passed, which also provided for the final purchase of the lines of the Southern Company. This company, with its 2300 kilometres (1426 miles), was now the only important example of private ownership, and consequently the only serious obstacle to state operation. Its lines must be added to the state net—a thing for which the administration had striven since 1874–76.

The Act of 1905 put under state operation approximately 11,000 kilometres, though a small part of this did not belong to the state. The government, according to the provisions of the conventions, paid for the old rolling-stock and the new equipment purchased since 1885. The amount needed for this transfer from company operation to state management was nearly 500,000,000 lire ($96,000,000). By the purchase, in 1907, of the lines of the Southern Company, 2300 kilometres more were added to the state net of operation—a total of 13,300 kilometres (8246 miles), out of the grand total of all the lines of about 16,600 (nearly 10,300 miles). The private lines have, therefore, since 1907 been very small, and most of them have been only secondary or branch lines.

The cost of the construction of this mileage of line

had been upon an average approximately $109,000 per mile. It was $92,000 in 1883, $121,000 in 1890, $128,000 in 1900, and, upon the state net, $127,000 in 1907. The total cost had been up to 1907 nearly 6,000,000,000 lire; and during this year Parliament, to make up certain deficits, and to put the lines upon a footing of efficiency, voted to the Railway Department, all of which should be paid by 1911, the sum of 910,000,000 lire. This made a grand total of almost 7,000,000,000 lire. The tasks of railway building in Italy have been tremendous; many mountains must be tunnelled and many streams bridged.

Has the mileage of Italy been adequate? We shall answer this question by giving the mileage at representative dates per 100 square miles of area and per 10,000 population, two tests which, while not absolutely accurate or adequate, are in most general use. Neither test gives Italy a very favourable showing. The mileage of railway per each 100 square miles of area has been: 4.19 in 1875, 5.8 in 1885, 8.8 in 1900, and 9.3 in 1907–08, as compared with 19.06 in Great Britain. The mileage per each unit of 10,000 population has been: 1.7 in 1875, 2.17 in 1885, 2.9 in 1895, and 3.16 in 1907, with 5.58 for the United Kingdom.

The history of railway development in Italy has, therefore, been one of many fluctuations. The policy of the state's relation has been inconsistent, and it is perhaps still in an experimental stage. Throughout the life of the railways, the state has been the largest contributor; it has built most of the lines, directly, or indirectly through subsidies to the companies. The theory has all the time been that the state should be

the owner of the roadway and permanent structures, and only for short periods has this theory been set aside. Private enterprise has had permission only at certain times to play the more active part in railway construction and operation, and then under rigid supervision by the state. No concessions have been made to companies for long periods, only for short specified times, at the end of which the state should become the owner, and perhaps the manager, of the lines. It would, in fact, have been difficult for private enterprise unaided to build the railways. The main lines have from the beginning found it difficult enough to secure sufficient income for maintenance and fair returns on the capital investment. The cost of construction has, as we have seen, been comparatively large, and that of maintenance and operation high. The coefficients of operation—the ratios of operating expenses to income—have been for typical years: 67% in 1885, 68% in 1890, 75% in 1895 and 1900, 68% in 1903, 73% in 1906–07, and 78% in 1908–09.

The operation by the state since 1905 has been most difficult. A separate department of administration, which should be practically independent of the ministry, was created, in order to make state management as far removed as possible from partisan politics. The theory of the machinery of operation was, therefore, sound in at least one aspect. The State Department of Railways was, however, without experience in railway transportation, and its tasks were in consequence all the more difficult. There was, on the other hand, one very favourable element in the situation. The time, especially the first three years, in which the

new management went into force was most auspicious for railway transportation. These were years of almost universal prosperity for the world. Italy had during this time growth in her industries and expansion in her commerce, both foreign and domestic. The new management had, as was to be expected, during these three years an increase in income; in the case of the three great systems, of 29% in 1905–06 over 1900–01, of 11% in 1906–07 over 1905–06, of 11.5% in 1907–08 over 1906–07. This increase in earnings was, moreover, not confined to the period 1900–08. From 1885 to 1900 it had been important. A considerable portion of this increase in earnings was, however, consumed by the increase in the cost of operation—from 68% in 1903 to 78% in 1908–09.

The new management, therefore, found the traffic situation highly favourable, but the condition of the plant and equipment was deplorably inefficient. The companies had, as we have seen, been allowed by the state to neglect their part of the task of maintenance; and the state had been equally negligent in its part. To supply an efficient service for a rapidly increasing volume of business was for a time, therefore, almost impossible. The great lack of efficiency in the plant and its equipment, especially in the equipment, must be met by the new management at the very beginning of its work. It was found that about one-third of the locomotives had been in use for thirty years—more than the lifetime of an efficient one; and much of the passenger and freight service equipment had been used for thirty and forty years. That the state operation should not make big dividends on the capital for at least several years, was to be expected. It made, in

1908–09, above operating expenses, which did not include interest on the debt, only 1.75%—hardly more than half enough to pay the interest on the state railway debt.

For References, see Chapter VIII.



CHAPTER VIII

RAILWAY TRANSPORTATION IN ITALY—(*Continued*)

OUR picture of the Italian railways—their mileage, capitalisation, ownership, and operation—becomes more complete when we make it cover their traffic conditions, their services and rates, and the ideals and machinery of the state's control.

(*a*) *General Conditions of Traffic*

The traffic of the Italian railways has never been large; the gross earnings per kilometre did not prior to 1904 exceed an average of 20,000 lire. Italian industries and commerce have had, until within the last few years, a slow growth. The people have generally had a small consuming capacity, and as producers they have not been very efficient. Their demand for products has not been great; their industrial intelligence has been comparatively slight; the burdens which they have borne in taxes have been heavy; and their raw materials have been few. In 1906, a fairly typical year, practically no coal was mined, and the output of pig iron was but 30,450 tons —two fundamentally vital groups of production in a number of the nations. The natural resources of soil and forest have long been comparatively exhausted.

All these facts, together with the long prevailing spirit of local self-sufficiency, have meant a slight traffic for the railways.

In more recent years there has, however, been a revival of industrial activity. Manufacture has come, in the northern portions, on a fairly large scale. Milan is now an important centre of the silk industry, especially in the making of raw silk, in which Italy ranks next to China and Japan. The north now calls for the raw materials of Central and Southern Italy, and also desires to sell to these sections finished products. The south has in recent years had a growth in agriculture, and now sends to the north considerable quantities of fruits, wines, and vegetables. Thus long-distance traffic for the railways is being made, both northward and southward, though as yet the north-bound freight train carries the more loaded cars. The demand of Northern Europe for the commodities of the farms, vineyards, and orchards of Southern Italy has come to have a great influence upon this traffic, and has made exceptionally low rates for it. And throughout the kingdom, wheat has become a very valuable product of the soil. Its output in 1907 was 177,000,000 bushels, as compared with 634,000,000 for the United States—a rank in the world of the sixth place. The total tonnage of the railways has consequently had an important increase, as, for instance, from 20,000,000 in 1903 to 30,000,000 in 1907.

Exports and imports have had slight influence upon the traffic of the railways. These can to such an extent by ship come to and go away from the Italian ports, of which there are many, that long-distance

hauls by rail have been the exception, never the rule. The geographical fact, that no important centre is far distant from an excellent seaport, has exercised a profound influence upon the development of the mileage and the traffic of the Italian railways.

The slowness of the growth of the railway traffic has also been due in part to the complexity and inefficiency of the management. The rates have not been properly adjusted to develop the maximum of new business; the managers of the railways and of the state's supervision of private operation have never keenly understood the vitality of the relationship which exists between lower and more elastic rates and an increase of traffic. With one important exception, that of the Southern Company for the period 1865–1907, the private companies have not placed much emphasis upon this relationship. For the private management, the state has exercised a rigid control over the rates; for the state operation, the government has rigidly fixed the charges. For all forms of management, the state's supervision has been slow, cumbersome, and fluctuating in policy.

The competition between the ocean ships and the railways has, as we have said, been important, even intense; and the state has been forced to grant exceptionally low rail rates to meet it. The influence of the inland water has, on the other hand, been very insignificant. There has, to be sure, been some inland water traffic in the north-east, from Venice to Mantua, from Como to Milan—about 5,000,000 tons annually, upon the 2000 miles of navigable waterways. The means of the waterways transport have been inefficient; they have hardly changed in a half century,

and consequently the force of their competition has been very slight upon the rates of the railways.

The classifications and rates have been complicated. They were especially so before 1885. There was prior to this date practically no uniformity between the lines of the various companies. With the conventions of 1885 came a more uniform system of the classification of commodities and their rates, as well as of the passenger traffic. These conventions provided for a practical monopoly of management to each of the three companies. Their lines were not to have any important overlapping, and, where this existed, the competitors were to form working agreements. Since 1905, the return to state operation of the great majority of the mileage, the small private companies have not been powerful enough to offer serious competition to the state net. Classifications and rates have, therefore, since 1885 been largely uniform, but still not simple. It was provided in the conventions with the three companies that no rates could be operative until approved by the Minister of Public Works, and published by royal decree; and further that, after their operation for one year, they should by Parliament be declared as the statutory maxima. Rates have, of course, since 1905 been made in the first instance by the Department of Railway Administration. The Italian rates have, since 1885, had the condition of inelasticity, which most generally comes with statutory maxima or with state-made rates.

(*b*) *Passenger Service and Rates*

The passenger traffic, as well as the freight, has

been comparatively light. There has been too little business activity to make this heavy; and the travel for pleasure or culture has, apart from that of the foreigners, not been particularly important. A suggestion as to the volume of the passenger traffic of the Italian railways is made by the fact that the per capita trips of 1900 were, upon the three big systems, only 1.43, as compared with 27 in Great Britain, 12 in Germany, 10 in France, and 6.9 in the United States.

The passenger service has in Italy, as elsewhere in Europe, been divided into three or four classes; it has, for the most part, been three. Here, as elsewhere, the bulk of the traffic has been in the third-class service, as may be seen from the figures of the fairly representative year 1899: 3.43% in the first, 19.52% in the second, and 76.91% in the third. The distance has been upon the whole short; the average for all classes was 46 kilometres in 1875, 43.7 in 1885, 43.3 in 1890, 48 in 1896, and 50 (31 miles) in 1900.

What have been the rates? They were in 1885–86 per passenger per kilometre, upon express trains: 12.4 centimes for the first class, 8.7 for the second, 5.65 for the third; for ordinary trains, they were: 11.3 centimes (3.5 cents per mile), 7.9 (2.45 cents per mile), 6.09 (1.89 cents per mile). By 1896 they had for all the ordinary trains decreased to the averages: 8.68 centimes for the first, 5.78 for the second, 3.3 for the third, 3.1 for the fourth, with an average of all classes of 4.3 centimes per kilometre (1.33 cents per mile). This decline continued for a time, though it was only slight; in 1900 the average for all classes was 4.1 centimes per kilometre (1.27 cents per mile).

Then came a period of increase, at least in the standard rates. These were in 1906, when a revision took place, only slightly different from the normal ones in 1885.

The revision of 1906, which was, of course, for the state net, made no important changes in the rates for journeys up to 150 kilometres (93 miles). Its radical feature was in the establishment of the tapering system of rates. Prior to this date all rates had been upon a kilometric basis. Now three divisions were made: (1) distances up to 150 kilometres, (2) from 150 to 1550, (3) beyond 1550. For the first division of traffic all rates were fixed upon a rigid kilometric basis; the field of the second division was divided into many zones, with tapering rates per zone; the total charge for the third division could never become larger than that for the last zone in the second, 1541–50 kilometres, however great the length of the journey. The standard rates, per kilometre, for the first division were made as follows:

	Class I	Class II	Class III
Express trains	12.76 centimes	8.93 centimes	5.80 centimes
Slow and mixed trains	11.60 "	8.12 "	5.22 "

The rates for Classes I and II were slightly higher than those for 1885, while for Class III they were somewhat lower.

For the traffic in the second division, the zone system brought important reductions in rates for all

classes, especially for the long journeys, in order that Northern and Southern Italy might the more closely be joined. This decrease may be seen in the following figures of the total fares for these representative distances:

	Class I	Class II	Class III
For 160 km.	20.15 lire	14.10 lire	9.15 lire
For 316–20 km.	35.30 "	24.50 "	15.85 "
For 636–40 "	58.40 "	38.00 "	24.35 "
For 1541–50 "	87.50 "	57.80 "	36.80 "

What the actual average of the rates for all classes, standard and special—return, season, and excursion—, has been since the reform act, we have not ascertained with accuracy, though it has perhaps been near 1.25 cents per mile. The decrease in rates made in 1906 applied only to the long distances, above ninety-three miles; and, since these journeys constitute only a very small portion of the total, the average rate for all services was not materially changed.

(*c*) *Freight Service and Rates*

The freight service has generally been in Italy, as in France, divided into two groups: (1) the fast, (2) the slow. The fast freight has been of two classes; the slow, of eight classes.

The conveyance rates for the fast service were, in 1885, 45.2 centimes per ton (met.) per kilometre for the first class, 56.5 for the second. The average for both classes was fifteen years later 46.4. A slight

revision was made in 1907, and since that date the rates have been 46.4 centimes for Class I and 58 for Class II.

For the slow service, the normal conveyance rates per ton (met.) per kilometre in 1885 were:

Class I	Class II	Class III	Class IV	Class V	Class VI	Class VII	Class VIII
16.32 centimes	14.28 c.	12.24 c.	10.20 c.	8.16 c.	7.14 c.	6.12 c.	5 c.

The terminal charges in 1885 ranged from 2 lire per ton for the first class to 1.2 lire for the eighth class.

The slow service rates have had since 1885 the slightest changes, toward an increase. The terminals were in 1907 fixed at 2.06 lire per ton for the first five classes and 1.23 lire for the last three. The normal conveyance rates were at this date made for the eight classes as follows: 16.48 centimes per ton (met.) per kilometre, 14.42, 12.36, 10.30, 8.24, 7.21, 6.18, 5.15.

What of the actual rates? There have been, in addition to these standard rates, many special ones. These have most generally been granted only for a certain minimum shipment or for extraordinary requirements as to loading and unloading. The minimum, or waggon-load, rates have been general for the large majority of the Italian traffic; and for these the zone system has applied, though without a clearly defined policy. For the fast service, the zone system has applied to both distance and weight; for the special slow service, only to distance There have also been exceptional rates, usually granted to exports and imports, and for national purposes. The special

waggon-load rates and the exceptional ones for imports and exports have been considerably lower than the normal. The actual rates have, therefore, been much lower than the standard. What these have been, and what changes have been made in them, may be seen in the figures which we here give as to their average at certain representative dates: 1.95 cents per short ton per mile in 1872, 1.97 in 1880, 1.64 in 1890, 1.57 in 1899, and 1.56 in 1908.

The fact that many of the shippers have only small lots to transport, and the further fact that the car-load lot moves at a considerably lower rate per ton than the piece shipment, have, of course, had considerable influence in developing the business of the *Spediteur* or shipping agent. The complexity of the classification and rates has also been an important factor. The Italian goods rates have been inelastic and high, as well as complicated; the traffic conditions have not been favourable, and the state's control has been rigid.

(*d*) *Ideals and Machinery of State Control—Management*

The relation of the Italian state to the railways has, as we have said, been very close and vital. The government has rigidly controlled the operation by the companies, or it has itself managed the lines.

The Minister of Public Works has been the chief factor in this control and management. He has been the general administrative head—the final and authoritative officer. There has been since 1879 a bureau of railway inspection attached to the Ministry of Public Works, whose chief officer has been the Inspector

General of Railways. In 1885 another body was created for the purpose of rendering aid and advice to the Minister of Public Works. This body consisted of the minister of public works, the inspector general of the railways, the directing head of the division of traffic and statistics, representatives of the ministers of agriculture, industry, and commerce, and of finance, representatives of the council of the administration of the big companies, and others. Its functions were largely advisory. The bureau of inspection, which was in 1885 more definitely formed, performed the specific work of inspection and report to the minister. The scope of the work of all these administrative bodies was as wide as the possible phases of railway operation, and their control was effective, though inelastic. Under the supervision of such machinery, the private companies could not abuse their powers. These were clearly stated in their concessions or conventions, and their application was closely watched by the machinery of state control.

When the state assumed, in 1905, the management of most of the lines, some changes were made in the machinery of control. The state was now to control through its own management. Government management, just as government control of private operation, was placed in the hands of the Minister of Public Works —under his general supervision. The actual work of administration was by the acts of 1905 and 1907 assigned to a newly created administrative body, the Department of State Railways. This body was made, not a part of the regular machinery of administration, but largely an independent one. It was necessary that it should be divorced from party politics to the

greatest possible degree. It is only in a general way responsible to the Ministry. Its responsibility to Parliament is, however, more direct, perhaps unfortunately so. The Minister of Public Works has the power to declare unlawful its decisions and acts, but he can never substitute his own for those suspended by him. The Minister of Finance may inspect the working of the railway department, and report his findings to Parliament. It is Parliament alone that can seriously hinder or control its operations.

The department of railways was in 1905 placed in the hands of a president, named Director General of Railways, and six members. In 1907, the membership was enlarged to eight, besides the presiding officer. This body is called the Council of Railway Administration, and its members become, *ex officio*, state officials. The members are elected for two years, and they cannot be removed from office except by royal decree, and after the reasons have been definitely stated. They are men of expert knowledge of railway transportation; two are from the higher officials of the state railways, three from the officials of other administrative departments, and three from the ranks of private citizens. Its members cannot hold parliamentary appointments, and the members of Parliament are not eligible to seats in the Council of Railway Administration.

There are, under the direction of the Council of Railway Administration, a central office of inspection, which has control of the investigation of the technical phases of operation, and a number of central bureaus, that represent every phase of railway management. The lines are now divided into ten districts, but the

number may easily be changed. Each district has its own directory of administration, which must work under the general director and the Council of Railway Administration. The actual details of the management are in the hands of these directories; the general powers and work are with the Council of Railway Administration. This general body considers and approves the new projects and contracts, the business agreements and lawsuits, the relations of railway employees, and the railway budget. It supervises, in a general way, the actual operation, whether by central or district directories. It has great power; it must be consulted on numerous matters; it deliberates, approves, confirms, and authorises.

There is a parliamentary supervisory committee, created by the law of 1907. It contains six senators and six deputies. It investigates and examines the railway management, and reports directly to the two houses of Parliament.

There are also advisory councils—a general advisory council, and nine district advisory councils, also established by the law of 1907. The general council must consider all propositions from the Council of Railway Administration as to classification, rates, and traffic, and also the reports of the district councils, so far as they relate to matters of agriculture, industry, and commerce. The Council of Railway Administration is bound to advise with the General Advisory Council. The presiding officer of this council is the Minister of Public Works. Its regular membership includes representatives of all phases of governmental, transportational, or other aspects of economic life. The district councils perform for the district direc-

tories the same functions as the General Advisory Council does for the central directory; and their members represent the various interests concerned in the railway transportation of their district—the state, as well as the agriculture, industry, and commerce of the citizens.

The state's machinery for the management of its own lines is, in theory at least, complete and adequate. Its real strength and efficiency depend upon the ability, honesty, and freedom, of its personnel. Its tasks have been tremendously great. Its results have as yet been only fair.

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CHAPTER IX

RAILWAY TRANSPORTATION IN GERMANY

IN Great Britain we have the most complete example of the private railway; in Germany, the most perfect illustration of the state railway. Throughout their history, the British railways have been exclusively private in ownership and operation; the German, though practically all the time mixed, have been quite largely state in both ownership and management. The British came the first, but the German had their beginnings not many years later.

(*a*) *Development of the Lines—State or Private*

The first German line, a very short one, was in the process of construction as early as 1832 and was opened for traffic in 1835. The early railways were built by private enterprise with occasional assistance from the government, in the form of direct purchase of the stock, or indirectly through a guarantee of interest on the bonds or stocks. Railway construction was prior to 1843 entirely done by private enterprise; the state gave no aid, and the citizens demanded considerable pay for the right-of-way. The government treasury was not in a favourable condition, and the administrative officers had, at first, little confi-

dence in the new form of transportation and communication. During the first decade of their operation, the state rendered only slight assistance, but soon after 1845 the government became more active in its aid to private enterprise, and also instituted a policy of state lines.

Railway building came in the German states—there was no real German nation when it had its birth—without a definite plan. In France there was at the beginning a comprehensive scheme; and all lines came from the centre of political power—Paris. Berlin was not then the capital of the German states, and it was not even the centre from which the Prussian lines originated or focalised. The French lines really had their origin in politics, those of Germany in business. The first German lines were, as we have said, private—to connect certain industrial and commercial centres for business reasons, but the political idea soon became a more prominent element. The first suggestion of the idea of a state railway came as early as 1828, several years before the first line was in operation. In 1838 it assumed a more definite form, though it did not become particularly clear or vigorous before the middle of the century. By this time, the railway had clearly demonstrated its permanent superiority over the other means of transportation, and the public treasury had become more capable of rendering important aid to private enterprise and to state building.

A number of the private lines were not successful. They had slight traffic of persons and commodities, and capital had been made timid by the panic and depression of 1845–48. The state, about 1850, took

over a number of the embarrassed lines, and also entered upon the scheme of state construction. The old lines were scattered and disconnected; they must be made into through ones. The various parts of Prussia and the other German states were separated, and for political as well as commercial purposes they must be joined. The effects of the panic had soon after 1850 spent their force, and there was an important revival of railway building, and of industries and commerce. Private capital was eager enough to invest, and the state was ready to make an important contribution, either in aid to the companies or in construction of its own. There had in fact come, by 1860–62, the spirit of expansion, even of the highly speculative type; and under the impulse of such a spirit the mileage had a great growth. There was, however, as yet no clearly defined policy of the state. There was, in fact, a policy of fluctuation between the private railway and the state railway. There was also much confusion as to classification and rates. Uniformity had come on neither the private lines nor the state net.

The formation of the Empire in 1871, and its ambitions to make a united nation and people, brought to the front the desire for a more definite policy of the state toward the railways and for greater uniformity of service and rates. The impulse for more complete nationalisation by the states, if not indeed by the Empire, became very strong. Bismarck became a tremendous personality for state railways, even imperial railways, as he had been for a great and united government. Prior to 1874, the German railways were, as we have said, mixed in confusion. The small

states had had their own lines largely from the beginning, as parts of the royal domain and power. In Prussia, the dominating German state, there had been private lines and state lines. The control which the imperial constitution of 1871 gave was not sufficiently strong and effective. Bismarck worked for imperial ownership. The foundations of such a net were laid in 1871, when the lines of Alsace-Lorraine came to the Empire, as a result of the Franco-Prussian War. Prussia was willing to transfer her railways to this net, but in the smaller states the opposition to such a scheme was especially vigorous, notably in Bavaria and Saxony. The imperial plan had by 1875 been abandoned; the opposition had been too significant.

Bismarck now more than ever directed his energies to the completion of nationalisation in his own state—Prussia. In 1875 about 44.5% of all the lines in Germany were in the hands of the companies, but from this date the movement toward nationalisation became stronger and stronger, especially after 1879. This movement had by 1909–10 produced a situation overwhelmingly national. At this date only 8% of all the mileage of the German states was in the hands of companies—2.5% of the chief and about 15% of the branch lines (*Nebenbahnen*). The private lines are now nowhere in all Germany of great extent. In some parts they are numerous, but everywhere they are greatly limited. The most significant of all the state nets is that of Prussia-Hesse. It controls all the important through lines in Northern Germany, though the Oldenburg and Mecklenburg state systems play a considerable rôle in the transportation of this section.

With the growth of the idea of nationalisation, came a great extension of the mileage. By the end of 1907 the normal tracks in Germany constituted more than one-sixth of the whole of Europe—a system larger than that of any other European country with the one exception—Russia. The continuance of this expansion has been notable, as may be seen from these figures of fairly representative years:

1840.....	549 kilometres	(340 miles)
1850.....	6,044 "	
1860.....	11,633 "	
1870.....	19,575 "	
1880.....	33,838 "	
1890.....	42,869 "	
1900.....	51,391 "	
1908.....	59,000 "	(36,642 miles)

Since the Prussian state net has played such a large part in the development of the entire mileage, and especially since it has played such a dominating rôle in the world's activity along the line of state management, a detailed statement of its growth should be of considerable interest. This growth we present in the figures of what we believe to be typical dates:

1860.....	1,497 kilometres	(928 miles)
1865.....	1,734 "	
1875.....	4,101 "	
1885.....	21,027 "	
1900.....	30,347 "	
1910.....	37,162 "	(23,040 miles)

The Prussian state net, though it laid its foundations as early as 1848—in a line built for military purposes from Berlin towards Russia—, had no vigorous growth until after 1875. Though Bismarck had been in power since early in 1860, and though the Prussian Parliament had, in 1873, resolved that the state net should as soon as possible become an active competitor of the private lines, more than one-half of the total mileage was still in 1879 in the hands of the companies. State purchase and construction now assumed a vigorous activity; during 1879–80, for instance, the government acquired 6198 kilometres. The total length of the state's purchases for 1872–1904 amounted to the large figure of 15,575 kilometres. By these purchases, and by the construction of some new lines, the state nets of the East and the West were joined together. Cologne was now connected with Berlin and points in Eastern Prussia. The completion of a unified state system was practically achieved in 1895–97, when the short (928 km.), though vitally important, net of Hesse was combined with that of Prussia. The completeness of the nationalisation of the Prussian lines may be seen in the fact that in 1907 there were only 2403 kilometres of private lines, with 35,550 of state; in all Germany 4214 kilometres private, 52,206 state.

Has Germany had a sufficient mileage of lines? Upon the bases (1) of mileage per each 100 square miles of area and (2) per each unit of 10,000 population —the most usual, though not entirely accurate, tests —, Germany as a whole and Prussia as a separate state make this exhibit:

ALL GERMANY

	(1)	(2)
1876–77	5.39 km. per 100 sq. km. (8.7 miles per 100 sq. m.)	6.82 km. per 10,000 (4.22 miles per 10,000)
1885	6.9 km. per 100 sq. km.	8.0 km. per 10,000
1895–96	8.36 " " " "	8.7 " " "
1900	9.22 " " " "	8.91 " " "
1908	10.56 km. (17.03 miles per 100 sq. miles)	9.07 " " " (5.61 miles per 10,000)

PRUSSIA ALONE

	(1)	(2)
1876–77	.....	.....
1885	6.4 km. per 100 sq. km.	7.91 km. per 10,000
1895–96	7.74 " " " "	8.52 " " "
1900	8.6 " " " "	8.75 " " "
1908	9.94 " " " " (16.03 miles per 100 sq. miles)	8.93 " " " (5.53 miles)

The German railways have been constructed at a comparatively moderate cost per mile, much less than in Great Britain, though much more than in the United States. The capital cost, per kilometre, of the Prussian State net—more or less typical of Germany—was 274,993 marks in 1885, 259,181 in 1890, 257,008 in 1895, 258,990 in 1900, 263,989 in 1905, and 290,519 (or $111,521 per mile) in 1909. The cost in all Germany was, in 1907, 277,121 marks, as compared with 336,000 for all of Europe and 177,334 for the United States (June 30, 1906). The right-of-way has been fairly expensive, and the building has in the main been

done with the view of permanence. The difficulties in constructing the road-bed have, however, not been great, especially for the larger part of Germany; the stretches have been over comparatively flat sections, and the bridges have not been so numerous or difficult to build. The German lines in this particular differ fundamentally from many of those in Great Britain, France, Italy, and the United States.

The cost of their operation has, on the other hand, been, relative to the general conditions, fairly high. To move traffic upon many of the German lines, especially those in the northern parts, should not be very expensive. The maintenance of the road-bed cannot be very costly, and many of the hauls are made over only slight grades. Perhaps the fairest and most efficient method of presenting this cost, is to give the coefficients of operation for certain more or less representative years:

1865	54.4 %
1875	66.6 %
1886	55.4 %
1895	54.8 %
1900	61.02%
1905	62.67%
1908	74.62%
1909	68.99%

From 1865 to 1903, the lowest ratio of operating expenses to income was 54.4 (in 1865), and the highest, 75.3 (in 1873–74).

While the cost of operation has been fairly high, the net earnings have been very considerable. For the

long period of 1868–1907, the full-gauged lines of Germany never had an income over cost of operation less than 4.5%, and in the most prosperous years this became as much as 6.94%. The Prussian railways have had an average higher than that of the lines of Germany as a whole, as may be seen in the figures of typical years and of a long period as a whole. The earnings of operation over the expenses of operation have been:

1882	5.22%	(on cost or capital)			
1885	4.88%	"	"	"	"
1890	5.26%	"	"	"	"
1895	6.75%	"	"	"	"
1900	6.87%	"	"	"	"
1905	7.13%	"	"	"	"
1908	4.78%	"	"	"	"
1909	5.94%	"	"	"	"

The lowest percentage from 1881 to 1906 was 4.86 (in 1883), and the highest, 7.13 (in 1905). During the period 1881–95 the average was 5.35%, and for 1897–1906, 7.08%.

These percentages were, however, only those of operating income over operating expenses; and the operating expenses did not cover the interest on the railway debt. When this interest is subtracted from the above percentages—and this must be done before we can ascertain the real net earnings—, the remainders are greatly reduced. If we estimate this interest at an average of 3%, and add to this a slight amount for a sinking fund, we have an average net balance of earnings not much above 2% for 1881–95 and 3.75%

for 1897–1906. And the state lines are taxed only by the local authorities; these in 1906 amounted to only $221 per mile, while the British lines paid $1050 per mile. After all the necessary subtractions have been made, the real net income to the state has, nevertheless, been important. This has since 1880 been large enough to pay the interest on the entire state debt, 88.4% of which was in 1899 the railway debt, and 74.7% in 1909, to provide for an annual sinking fund of one-half of one per cent., and to make a large contribution to the general state revenue. Such a condition in the net earnings, though it has been highly favourable to the state treasury, has not, we think, been the best thing for the maintenance and enlargement of the railway equipment or for the expanding industries and commerce.

(*b*) *General Conditions of the Traffic*

The German people were until 1870–75 very largely restricted in their economic efforts to agriculture; and this fact exercised a most significant influence upon railway transportation. A revolution now came in German life—one of the marvellous industrial revolutions of the world. Since 1875 manufacture has come on a large and profitable scale, and with it all the attending changes in the conditions of life. At this date, Germany, however great she was in war, was a backward nation in the field of industries; her natural resources were not developed and her industrial intelligence was only beginning to be notable.

The soil of Germany does not possess as much fertility as that of some of her neighbours. Her mineral

resources are, on the other hand, very considerable, though not so large, or so well situated, as those of Great Britain. In geographical position she is not so fortunate as the United Kingdom or the United States. Her people have, however, made the most of their relative lack of superior advantages. The strong and vigorous character of her citizens, and their energy and thrift, have overcome their natural disadvantages. Their industrial development during the last forty years has been a thing to be admired and marvelled at by the world. Germany's population has had during these years a large increase—from less than 41,000,000 in 1870 to 63,000,000 in 1908; and her industrial intelligence has increased still more wonderfully.

While the soil of most of the Empire is not particularly fertile, still agriculture has to this day been fundamental in German economic life, as well as in politics and commercial policies. Wheat, while it puts Germany only in the eighth rank of the world's producers, with France in the third, has exercised a profound influence upon her life.

Coal is Germany's most valuable mineral resource, but this is, unfortunately for many of the present industries, widely scattered. Its principal fields are far separated, and they are, relative to those in some other countries, not very large. The most important ones are located in the Ruhr district, in Westphalia, in the Saar region between the Rhine and the border of France, in Lower and Upper Silesia, and in Saxony. The annual output of these fields and of other minor ones places Germany in the third rank, with the United States in the first and Great Britain in the

second. Iron is found in fairly large quantities, in Alsace-Lorraine and in Luxemburg; Germany is now second to the United States alone in the making of pig iron and steel. The work of assembling these materials is, however, comparatively great. Germany must go to a greater expense in the collection of her raw materials for the making of iron than England; the cost of their transportation is practically three times that of England. The important plants for the manufacture of iron and steel, all the great ones, in fact, are localised in the Lower Rhine district. Some of these plants are more distant than others from the coal and iron-ore fields, but the total railway charges are practically the same for all, and they are consequently upon the basis of substantial equality in their competition on common markets.

There are also other important industries. In the production of chemicals, Germany has little serious rivalry. The making of the textiles—cottons, woollens and silks—engages a considerable portion of the energies of the people; and, that this industry might be as profitable as possible, its various plants have in the main been located near the coal-fields.

All this industrial development has meant a great and diverse traffic, passenger and commodities—has demanded constantly increasing facilities of roadway, stations, and rolling-stock. The railway has had serious competition in the waterways. The waterways in Germany, to a far greater degree than in Great Britain or the United States, have carried a large volume of traffic. The waterways of all kinds now have a mileage of about 6200, practically unchanged since 1875, but of this only 3268 miles are important—1948

of free rivers, 425 of canalised rivers, and 895 of canals. An increasingly large volume of traffic has since 1875 moved upon these ways.

This water-borne traffic has, however, been chiefly upon the more important free rivers. Seven of these carried in 1875 about 60% of the total water traffic, and in 1905 as much as 80%. It has been upon the Rhine, which in traffic is the greatest inland waterway in all Europe, and which is surpassed only by the Great Lakes, that a large percentage has moved. The Rhine tonnage per mile has had a wonderful growth—of 613% during the period 1875–1905. This one river alone now carries practically 43% of the total water-borne traffic, and the Elbe, 24%. The fact of the Rhine's tremendous importance as a carrier of domestic and foreign goods, connected with that of the cheapness of water transportation as compared with German railway transportation, is the chief reason for the location of probably 60% of the German manufacturing plants near its course.

The relative importance of the waterways and the railways is shown in the percentages of the kilometric tonnage of each. In 1875 that by water was 21%, by rail, 79%; in 1905, by water, 25%, by rail, 75%; in 1909, by water, 22%, by rail, 78%. It may also be seen in the tonnage of each. The water-borne traffic in 1875 amounted to 20,800,000 tons (met.), that of 1905, 103,400,000. That by rail was at the same dates 167,000,000 and 588,700,000—about 90% and 93%. The percentages of kilometric tonnage and of tonnage are very considerably different; the average length of haul was, in 1875, by rail 125 kilometres, by water 280, in 1905, by rail 151, by water 290.

These inland waterways, which are, as we have said, serious competitors of the railways, especially in the transportation of coal, ores, wood, agricultural products, etc., have been made navigable and maintained at a large public expense. The construction of canals and the canalisation of rivers have been done, as a rule, by the local states, and they are their property. Prussia, which has been a leader in the building and maintenance of waterways, as in other enterprises, spent from the public treasury during the period 1813–1906 for their construction and improvement more than $130,000,000. The annual cost of their maintenance has, moreover, been an important item to the government. In 1905 the total expenditures were $4,000,000, the total income $1,700,000—a deficit of $2,300,000. When we add to this deficit the interest at 3.5% to 4% on the capital invested in waterways, we have a total yearly loss to the state of nearly $7,500,000. And the other German states have followed substantially the same policy.

All this expense has been incurred by a people who possess a great natural advantage in their rivers. The Weichsel, a great but as yet little used stream, the Oder, the Spree and Havel, the Elbe, the Weser, and the Rhine—all together make a large and important waterway net. These natural waterways have received from the state much consideration; many efforts have been made to join them by means of lateral canals—to improve them by every possible artificial means. The results of such efforts have brought cheaper transportation rates; and this has been well, except where it has meant a loss of traffic and earnings to the railways. The fact that many of

the places of raw materials are far distant from those of their manufacture, and that the centres of their final conversion into finished products are generally far separated from those of their ultimate consumption, has called for a cheap transportation service. The government has for the most part pursued the policy of making the canals and canalised rivers supplements to, rather than competitors of, the railways. These have been made to relieve the railways of the heavy burdens of traffic, when perhaps a wiser thing would have been to increase the equipment of the railways to enable them to carry any volume of traffic.

The end of canal building by the state is most probably not yet. Larger schemes have, in fact, been proposed in more recent years, especially since 1894. They would connect the Rhine with the present Dortmund-Ems Canal, and this canal with the Elbe. The railways of the great manufacturing district of Rhenish Westphalia cannot, without a great outlay upon trackage and equipment, move the expanding traffic. Much of this traffic now goes northward upon the German rivers, eastward upon the North Sea or the Baltic, and southward upon the German rivers; and, in its westward journey, over the same circuitous route. The new scheme of canals would cause this traffic to move directly eastward and westward, all the time within the territory of Germany. The railways could carry this traffic, if they had the equipment which might have come to them from their considerable net earnings, had the public treasury not used it in large amounts for the general expenses of the state, and if they were permitted to offer lower rates for the long hauls. Is it an act of wisdom to

levy a tax upon all the Prussians or other Germans, in order to develop the transportation facilities of only a few parts—those which would be served by the canals?

The canal and river craft compete with the railways in certain heavy, bulky, and low value commodities. The water craft rates are for these goods generally lower than those of the railways, and they are wholly unregulated by the government. In the east, where there is little traffic, they are controlled by working agreements; in the west, by competition. The river craft pay no tolls; the canal, small ones. The railway rates are quite rigidly fixed by the government upon a distance basis. Commodities cannot afford to move in a circuitous way by rail; the water rates elastically adjust themselves to the conditions of the traffic, to the disadvantage of the railways.

For References, see Chapter XI.

CHAPTER X

RAILWAY TRANSPORTATION IN GERMANY—(*Continued*)

A COUNTRY which has the industrial activity and the culture of Germany always has an important passenger traffic. It is, in fact, in the passenger service that the German railways make their best and greatest exhibit, though their freight service is by far the most important source of their earnings. The relative importance of the two services may be seen in the fact that in 1900, for instance, 28.17% of the income was from the passenger, and 64.36% from the freight. It is, however, the passenger service that makes the state system most popular. The German railways, especially those of the Prussian state net, have made every effort to please the masses. They have in the Southern states offered three classes of service, and in Prussia four. They have made the effort to supply every class of people with a service to suit their special wishes, and with rates differentiated according to their ability to pay.

(*a*) *Passenger Service and Rates*

Since the number of classes of service has a profound influence upon the average rate per passenger per mile, we shall present the figures of the relative volume of

the traffic in each class on the Prussian state net at representative dates:

	1860 (Pr. lines)	1875 (Pr. lines)	1891–92	1905
Class I	3.3%	3.1%	0.4%	0.34%
Class II	27.1%	21.1%	10.2%	9.86%
Class III	48.2%	43.5%	50.7%	43.37%
Class IV	21.4%	32.3%	37.2%	45.26%
Military			1.5%	1.17%

This table clearly demonstrates that the great bulk of the passenger traffic has been in the third and fourth classes. These two classes combined had 69.6% of the total in 1860, 75.8% in 1875, 87.9% in 1891–92, and 88.6% in 1905. The grouping for all Germany is, moreover, only slightly different from that in Prussia.

Most of the passengers have not only travelled third and fourth classes, but they have also taken short journeys. In 1903, a representative year, the average distance on the Prussian state lines was 20.49 kilometres for the third and 24.26 for the fourth, while for the second it was 30.89 and for the first, 100.84. The average length of trip has, in fact, for all classes combined been comparatively very short. It was on the Prussian state net 23.73 kilometres in 1895–96, 24.1 in 1900, 22.79 in 1905. For the German railways as a whole, it has been practically the same as on the Prussian.

The density of traffic has, of course, been very different in different parts of Germany. It was, as measured by the per capita trips, in 1898–99, for instance, nearly 12 for the whole of Germany, 15.8 for Saxony, and 10 for the Prussian–Hessian state net. Most of this density has come since 1870, the begin-

ning of the industrial revolution. It was in Saxony at this date only 2.5, in Prussia 2.7. Since the bulk of the German traffic has been upon the Prussian lines, the increase in its density, as shown by the per capita trips taken upon the Prussian state system, should be a matter of interest. This was .56 in 1850, 1.2 in 1860, 2.7 in 1870, 4.6 in 1880–81, 9.3 in 1890–91, and 10 in 1898–99.

To the passenger, as well as to the railway management, the question of rates is a fundamentally vital one; the passenger desires the maximum service at a minimum charge, and the railway manager strives for maximum net earnings from the operation of the service. Has the German railway manager, in order to achieve his ideal, offered lower and lower rates? A negative answer is given by the standard rates per passenger per kilometre for each class of service upon the Prussian state lines, and the Prussian private lines have had substantially the same charges as the state.

These rates were during 1880–86:

(1) Express service	Class I, 9 pf. per km.	(3.45 cents per mile.)
	Class II, 6.67 " "	(2.55 " " ")
	Class III, 4.67 " "	(1.79 " " ")
(2) Slow service	Cláss I, 8 pf. per km.	(3.07 cents per mile.)
	Class II, 6 " "	
	Class III, 4 " "	
	Class IV, 2 " "	(.768 " " ")
	Mil. Class, 0.5 " "	

These rates continued in 1895 to be the standard, and changes in them were exceedingly slight until 1907, when the new reform was made. In 1900 the standard rate for the military class was 1.3 pf., in 1905–07, 1 pf., and working-men could travel on special tickets at the same fare. The standard rates for all

the German railways were from 1880 to 1907 not materially different from those of the Prussian lines, with the exception of the fourth class. This service did not exist in South Germany; and the rates for Classes II and III were there lower than in Prussia, while the charges for express service differed from those for the slow more in Southern than in Northern Germany.

By the reform of 1907 certain changes were made, though no radical ones. The schedule of rates then formulated was made to apply to all of Germany. Now, after many years of negotiations between the various states of the Empire, and much discussion in the Reichstag and the Landtag, uniformity in rates was achieved. The new standard rates were, like the old, divided into two groups: (1) express and (2) ordinary.

The rates as fixed for the ordinary service were:

Class I,	7 pf. per km.	(2.68 cents per mile)
Class II,	4.5 pf. per km.	(1.72 " " ")
Class III,	3 " " "	(1.15 " " ")
Class IV,	2 " " "	(.768 " " ")

For the express service, the following extra charges were prescribed:

	Classes I and II	Class III
For 1 to 75 km.	.50 marks	.25 marks
" 76 to 150 "	1.00 "	.50 "
Over 150 "	2.00 "	1.00 "

The changes as instituted in 1907 were not in reality as great as would appear. There were certain impor-

tant restrictions placed upon the service, which tended to counteract the reductions in the charges. There was now to be no free transportation of baggage except that carried in the passenger's hands; and rates were prescribed for it, which varied with the weight and the zones of distance. There was to be no sale of return tickets. The one-way ticket of the new schedule costs slightly less than that of the old, but two single tickets amount to more than the former return ticket. An imperial tax,[1] varying for the different classes and with the total charge, was now levied upon all tickets of the first three classes. The standard rates have, therefore, had but slight decrease.

That there have been reductions, even important ones, in the average rate for all classes, is very clear, but these reductions have come through a greater use of the third-, fourth-, and fifth-class service, and through the sale of numerous special tickets. The decreases in the average rates may best be seen in these figures, which are taken from the Prussian state system, at representative dates:

1850,	1.75 cents per mile.		
1860,	1.65 " " "		
1870,	1.29 " " "		
1880–81,	1.39 " " "		
1890,	1.14 " " "	(2.96 pf. per km.)	
1900,	1.01 " " "	(2.64 " " "	)
1909,	.89 " " "	(2.32 " " "	)

[1] The tax varies as follows:

(1) For tickets amounting to .60 to 2 marks, 20 pf. for Class I, 10 for Class II, 5 for Class III.

(2) It increases with the amount of the total fare until for tickets of more than 50 marks it becomes 800 pf. for Class I, 400 for Class II, 200 for Class III.

The decline in the actual average rates has, therefore, been very important. They were in 1909 hardly more than one-half of those of 1850; during the decade closing with 1909 they had decreased 12.45%, during that of 1889–1899, 14.2%. The Prussian passenger service has a remarkably clear record for cheapness; and for the whole of Germany it is but slightly different from that of Prussia. The German average rates are scarcely one-half of the British or the American. The service in Great Britain, with the three classes, compares much more accurately with the German and its three, four, and five classes, than with that in the United States, which has but one universal first class and a second that applies to certain sections only. Upon the basis of the first class, which in Germany has not for practically a half century carried more than 4% of all the traffic, and which in the United States has carried by far the larger part of it, the railways of the United States make the best exhibit for cheapness of service; and this service is, certainly, the equal of the German. The German, especially the Prussian, service for all classes is, however, a remarkably efficient one, when we consider it in terms of its rates. The Prussian passenger service is, upon the whole, a worthy achievement.

(*b*) *Freight Service and Rates*

The commodities traffic of the German railways has been miscellaneous and, therefore, difficult of classification. The systems of lines in one state were independent of those in another state until afte- the creation of the Empire. It was not until 1877, in the so-called "reform tariff," that much serious effort was

made toward uniformity for all the German states. At a conference held in Berlin, in which were representatives of all the railways, a scheme of uniform classification and rates was formulated. This made in theory only slight classification, in fact very considerable. It created two general groups: (1) express and (2) slow service. It divided the fast traffic into three classes, and the slow into one class for piece shipments, two for general waggon-load lots, and four for special commodities shipped in large lots. It established terminal charges and conveyance charges.

The scheme of classes and their conveyance rates of 1877, stated in brief form, was as follows:

(1) Express goods,	9.0	cents per ton (met.) per mile.
(2) Parcels,	4.5	" " " " " "
A1 (general, for ½ car or 5000 kg. lots),	3.0	" " " " " "
B (general, for car or 10,000 kg. lots),	2.5	" " " " " "
A2 (grain, coal, lumber, etc., for 5000 kg. lots),	2.0	" " " " " "
I (grain, etc., for 10,000 kg. lots),	1.8	" " " " " "
II (lumber, etc., 10,000 kg. lots),	1.4	" " " " " "
III (coal, etc., 10,000 kg. lots),	1.04–0.88	" " " " " "

The process of uniformity, which was vigorously at work in 1877, continued until it became practically complete. The various forms of the machinery of the state's management of its own lines and of the state's control of the private lines worked toward its

completion. There was created an all-embracing German railways' union—the *Deutscher Eisenbahnverkehrsverband.* While certain modifications were made, the scheme of classification and rates as formulated in 1877 remained for a good many years as the standard, though from this date there was a general downward tendency in the actual rates. Many new items were added to the scheme. In 1878 there were only 160 items in the normal tariff; by 1905 they had grown to 364. Some of the old items were transferred from a higher to a lower class. The greatest source of the decrease in actual rates was, however, in the extension of the special or exceptional (*Ausnahme*) traffic.

While the actual rates have since 1877 had a fairly important decline, the average distance of the haul has not changed to any noticeable degree. On the Prussia state lines, it was 116.7 kilometres in 1890–91, 116.6 in 1895–96, 117.1 (72.6 miles) in 1900. On the German lines as a whole, it was 102.5 kilometres in 1900, 98.89 in 1905, 114.5 in 1907.

What have been the actual normal rates? This may best be seen in the following averages of the freight service (not *Eilgut* or express) upon the German lines, at fairly typical dates:

1868,	6.2 pf. per ton (met.) per km. (2.15 cents per short ton per mile.)
1885,	4.07 pf. per ton (met.) per km. 3.84 (Prussian State).
1892–93,	3.83 pf. per ton (met.) per km.
1900,	3.66 pf. per ton (met.) per km. 3.56 (Prussian State).
1905,	3.50 pf. per ton (met.) per km. 3.55 (Prussian State).
1907,	3.64 pf. per ton (met.) per km. (1.26 cents per short ton per mile.)
1909,	3.54 (Prussian State).

These averages of the normal rates do not, however, give us a sufficiently complete picture. What have been the details of these rates in more recent years? Since 1877 there have remained the divisions of *Eilgut* (express) and *Frachtgut* (ordinary freight), and the size of shipments in Classes B, A2, I, II, III, has not changed; that of A1 has been made to include 10-ton lots as well as 5. In 1898 the principle of the tapering rate was instituted for the piece shipments, for distances up to 500 kilometres (310 miles). During the next year a special class of express was given a rate—certain specified commodities, as, for instance, perishable foods and plants, shipped either by piece or in car lots. Special Classes I and II are still for certain heavy or staple commodities—raw cotton, iron, steel, etc., and Class A2 covers the five to ten-ton lots of such commodities as are designated in I and II. The following tables of the normal conveyance rates per ton (met.) per kilometre for the period 1890–1910 give in most strikingly compact form the details of these rates:

(A)

Stückgut (Piece Shipments)

Eilgut		*Frachtgut*	
Ordinary or regular	Special	Ordinary or regular	Special
(1890–98) 22 pf.		11 pf.	8 pf. (after 1892)
(Changes in 1898) To 50 km., 22 pf. (7.6 cents per short ton per mile)		11 pf.	

(A)—(*Continued*)

Stückgut (Piece Shipments)

Eilgut		*Frachtgut*	
Ordinary or regular	Special	Ordinary or regular	Special
51–200 km., 20 pf. 201–300 km., 18 pf. 301–400 km., 16 pf. 401–500 km., 14 pf. Over 500 km., 12 pf. (4.2 cents per short ton per mile)		10 " 9 " 8 " 7 " 6 "	
(Changes in 1899)	(As for ordinary *Frachtgut*) 11 pf...6 pf.		8 pf. to 6 pf. (for over 726 km.)

(B)

Waggon Lots (of 5 or 10 metric tons)

Eilgut		*Frachtgut*						
Regular	Special	A1	B	A2	I	II	III	
(1890–98) Double those of A1 and B		6.7 pf. (2.3 cents per short ton per mile)	6 pf. (2 c.)	5 pf. (1.7 c.)	4.5 pf. (1.6 c.)	3.5 pf. (1.2 c.)	(to 100 km.) 2.6 pf. (.9 c.)	(over 100 km.) 2.2 pf. (.76 c.)
(Changes in 1899)	Simple rate of A1 and B							

It will be noted, from the above tables of normal rates, which are still in force, that there have been since 1877 fairly important reductions in the rates for all classes of service.

There have been, moreover, separate charges for the station services — *Abfertigungsgebühren*. Since 1890 the terminal rates for the regular *Eilgut* have been 200 pf. per ton (met.) for 1–10 kilometres, up to 400 pf. for hauls of over 100 kilometres. For *Frachtgut* the following have been the charges: for Class A1, from 100 pf. for 1–10 km. to 200 pf. for over 100 km.; for Class B, from 80 pf. to 120 pf.; for Classes A2, I, II, III, from 80 pf. to 120 pf. (since 1897 from 60 pf. for 1–50 km. to 120 pf.). The charges for fast piece shipments at special rates and for slow piece shipments have since 1900 ranged from 100 pf. for 1–10 km. to 200 pf.

In addition to the normal class rates, there have been numerous exceptional ones. If we take these rates on the Prussian state lines as an example, and we may do so with fairness, we find that a large volume of the traffic has moved, not at the regular class rates, but at lower ones. At these exceptional charges, 59.1% of all the traffic moved in 1882, 61.3% in 1885, 46.8% in 1890, 45.6% in 1895, 64.27% in 1900, and 64.3% in 1906. In 1910 there were 27 exceptional commodities and 31 special seaport classes. These commodities are quite largely the ores, wood, coal, oil, and raw materials. The raw material class, which is perhaps the most important of the exceptional rates, has conveyance charges of 2.2 pf. per ton per kilometre for distances up to 350 kilometres, and 1.4 pf. for longer hauls. Its terminal charges are 70 pf. per ton.

The exceptional rates are, therefore, important. They, in fact, constitute the really vital problem of German rate making. The rates were during the early years of state management fixed largely upon a rigid distance basis. It was, however, soon evident

that such a policy could not be best for the state treasury or the German industries and commerce. It was in the desire to keep the theory of distance-rates, and at the same time to adjust them to the demands of business, that the exceptional rates had their origin. Their purposes have been to promote the growth of German agriculture and industry; to enable German products to compete on German markets with the imported commodities; to foster the commerce of German centres, particularly the seaports, in the face of competition by foreigners; to build up German railway and water transportation, which is always under the stress of competition from the French, Belgian, and Dutch carriers. All these reasons for granting exceptional rates have had their defence in the spirit of nationalism; the state may pursue any transportation policy that leads to German strength both political and economical.

Such rates have not for the most part been granted to finished products, whether they are sold in national or international markets; and in their granting to other commodities care has been had that they should injure to the least possible degree the interior interests. They have been, as we have seen, very numerous for exports and imports, but for these solely when they move through German ports over the sea. They have not, of course, applied to local carriage; and consequently the rates for local transportation have been higher than the exceptional over-sea charges. The interests of Hamburg and Bremen, Germany's great seaports, have been tremendously influential in Germany's railway policy. They must not suffer by the competition of Rotterdam and Antwerp.

The rigid distance rate is a simple one, but it is almost everywhere inefficient. When the German state lines abandoned it for a part of their traffic, and instituted the system of exceptional rates, they introduced great complexity. Their class rates have been simple; their exceptional ones, very complicated. A complete set of all the tariffs of the German railways makes a collection of 915 volumes. There were in 1908 for goods alone 708 different tariffs—209 for domestic commodities, 392 for goods hauled between Germany and foreign lands, 107 for foreign commodities carried through Germany; for live stock, 120, and for coal, 87. The complexity of the rates, together with the fact that the car-load shipment moves at a charge considerably less than the piece, has in Germany, as in France and Italy, brought into existence the *Spediteur* or shipping agent. He collects the small lots, and holds them until he can ship five or ten tons—the normal capacity of most of the cars. He, rather than the real shipper, is the expert in transportation; and it is he who receives much of the advantage of the important difference between the piece and the car-load rates.

The distance basis of rate making has, as we have seen, been abandoned for a considerable portion of the traffic. This has been done in the exceptional rates, which for many years have been numerous, especially for the exports and imports. It has since 1898 been done in the partial introduction of the tapering rate for *Eilgut* and *Frachtgut* in piece shipments. Has it been abandoned sufficiently? We do not think so.

In the case of coal, the rates have perhaps been sufficient for all but the longest hauls—those which

would place German coal in the northern parts of the Empire, which have for many years consumed considerable quantities of foreign coal. Most of the coal-fields are comparatively equidistant from the chief centres of consumption, and a distance rate is not, therefore, so much of an obstacle to their development. The raw materials which are needed in the manufacture of iron and its cruder products are so situated relative to the furnaces, that the distance basis of rates for these need not be materially abandoned. The products of the farms of Eastern Prussia, on the other hand, demand a greater variation from the distance rate, in order to place them in the great manufacturing districts of Western Germany—in locations where they are greatly needed. The milk, butter, eggs, vegetables, etc., which the large centres must consume, should have a still greater departure from the distance rate, that a wider territory might make profit out of their shipments to the centres, and that the inhabitants of these denser settlements might secure a larger and better supply at a smaller price. Berlin is forced by the distance rate to purchase her vast supply of fresh foods, etc., from a small area, the radius of which is perhaps not more than 75 or 80 miles, while New York secures hers from 300 miles away and London, 150–200. It has been largely due to the distance rate, that the average length of haul has long been from 100 to 117 kilometres—a distance practically the same as that in France.

In a number of commodities, the distance rate has worked no particular disadvantage to their development. In others, it has made it impossible for them to have the fullest growth. The principle of the

tapering rate needs, we think, a far greater application on the German railways than it has had. This principle has, it is believed, had a great and wholesome effect upon the industries and people of other countries. Prussia and the other German states would have had more of it, but for the prevalent local jealousies that have existed between the various parts of the Empire. The east has been kept too far apart from the west, and the north from the south. A greater application of the tapering rate would bring these closer to each other, to the real welfare of each. A wide application of the tapering principle would cause much more of Germany's traffic to move directly eastward and westward; the high distance rate has been the chief reason for the prevalent roundabout route. To secure the adoption of such a principle of rate making in a country whose railways are managed by the state is, however, a difficult task. Local interests and feelings of jealousy and self-sufficiency have too easy an opportunity to block the application of such a principle. They have ready means of making their force felt—in Parliament.

The freight service of the German railways has not upon the whole been equal in its efficiency to the passenger. Its speed has been too little, and its charges have been too inelastic and high. It is claimed, and perhaps with sufficient reason, that upon an average the freight cars of the Prussian state net are in movement less than four hours out of each twenty-four—that they are in the yards or upon the side-tracks, waiting for passenger trains to clear the way. It is clearly evident that there is need of a much greater mileage of third and fourth tracks. The passen-

ger trains are given practically all the priority in the "right-of-way," and upon a good many stretches they keep in almost constant use the present two-track roadway during a large part of the twenty-four hours of the day. The fact that two great cities like Berlin and Hamburg, for instance, should be connected, in their most direct route, by practically only two tracks, makes it really impossible for the fullest development of the freight traffic. The size of the cars, most of which are of only 5 and 10 tons' capacity, and the smallness of the trains are obstacles to the efficiency of this service. It is here, in the mechanical capacity, that the Prussian railway management is, we think, at its weakest.

The rates have been, as we have said, too inelastic in the case of a number of commodities; and they have been as a whole too high. The public treasury has been eager for large sums from the operation of the lines. Not to secure an important part of the public revenue from the net earnings of the state railways, means heavier taxes upon the citizens; and this would make the administration less popular with the masses. The railway management has, we think, had too much care to develop the passenger service to the point of the minimum of cheapness, even at the expense of the freight service. It has keenly appreciated the immense popularity which it might have from a larger and cheaper service for the passenger; it has not appreciated the growth in industry and commerce, as well as in railway traffic, which would follow upon a cheapening and an improvement of the freight service.

For References, see Chapter XI.

CHAPTER XI

RAILWAY TRANSPORTATION IN GERMANY—(*Concluded*)

THE chief work of the state's relation to the railways was until practically 1878 that of the regulation of operation by the companies. Since then it has been increasingly that of the management of the lines by the state itself. The German railways, unlike the French, came without any comprehensive scheme. The idea of their control by the government, however, became clear and definite at an early date. The great Prussian law of 1838 made it very clear that the state would regulate private operation, though it was not particularly specific upon the vital point of rates. The companies were given by this act the right to make their rates, but they were required after the first three years of operation to submit their schedules to the government for its approval. The law also provided for a reduction in the rates by the government, in case they should bring to the companies more than 10% on the capital invested; it also denied the companies the right to grant any preference of treatment or rates to any shipper. The Minister of Commerce, Industry, etc., was especially empowered to supervise the railway operation, in particular the relationship of the various lines. This official had already sufficient tasks to perform, and in 1848 a

Commissioner of Railways was appointed, whose function it was to supervise the operation, for the protection of the shippers and the state. Since 1895 the president of each railway directory has acted as the commissioner of the private lines that are located within his district.

The Ideals and Machinery of State Control—Management

The power of the Prussian state to control the lines of the companies and their operation came from the right of the government to issue concessions of privileges to private citizens or corporations, and to legislate in all matters of their action. This power expressed itself in (1) the oversight of the construction of the lines and of their operation, and in (2) the privilege to repurchase them, or to make use of them whenever the state needs to do so. The railway was, therefore, considered from the beginning as partly private and partly public. It must be operated with the view of industrial and commercial advantage and also with the maximum justice to the public and maximum service to the state.

The law of 1838 was so significant and comprehensive, as to make almost complete the foundations of the state's control of private lines. It, like the French laws of 1842 and 1845, was wonderfully complete and far-reaching. Experience, to be sure, called attention to certain points of uncertainty and of positive weakness. The act of the Prussian Landtag of 1882 established a new order. It provided for national and district railway councils. It made more complete

the machinery of the state's management of its own lines. It more fully provided for the machinery of the state's regulation of the private lines, and more clearly defined the rights and privileges of both parties—the company and the government—in matters of rates; all increases in rates were now specifically put under the control of the state. In all the points, this law rested upon the foundations laid in 1838.

Some of the changes, which were made in 1882–83, came out of the fact of the creation of the Empire and its constitution, in 1871. This constitution placed the power of the control of rates, on all the lines, in the hands of the officials of the Empire. Control now became a matter of the states and the nation. The Empire was given the power to regulate all rates, to reduce those for the longer hauls of such important commodities as coal, iron, etc., and, in times of crises, to compel the railways to carry grain, meal, potatoes, and other necessary foodstuffs, at very low rates. The constitution gave to the Empire substantially the same rights and powers of control over all the private railways of German, as the Prussian state had long exercised over those within its borders. The Empire might grant charters, and it might legislate. It was, in theory at least, to exercise general supervision of the building and operation and especially of rates. It could make use of all the lines for its own service in times of war, for national defence, and it could construct lines anywhere in the German states. There was, however, one exception made to the universality of the powers and rights of the Empire over railways; in Bavaria it could only legislate.

Special imperial machinery, for the exercise of these

powers, was early created—the *Reichseisenbahnamt*, in 1873. It should put forth effort to cement the federal states into a strong and unified body in all phases of life. An attempt was, moreover, made by Bismarck for the Empire to purchase all the lines of the German states. Had his ambition been achieved, the imperial power over railway transportation would have become tremendously great. Its failure has meant that imperial control has remained only a nominal one. The real control has continued, as before, in the hands of the individual states. The imperial machinery has, however, been adequate, and, while its supervision has, apart from the small lines of Alsace-Lorraine, which the empire owns, been most general, its power for unification has been very considerable. This machinery has been as follows:

The two houses of Parliament have had, together, the power over all the German railways, so far as matters of national defence and universal traffic are concerned.

The Kaiser has been, *ex-officio*, the chief of the imperial railway office; he has appointed its members. He has had the power to demand and to prescribe lower than the normal rates for the transportation of provisions, in case of great emergencies. He, in connection with the Upper House of Parliament, may call for the conveyance of soldiers and the materials of war.

The Bundesrath was made, by the constitution, a permanent committee on the railways. It was empowered to execute all its provisions. The special acts of 1875–76, as well as the constitution, gave it the right to formulate schedules of rates for the convey-

ance of soldiers, war provisions, and commodities of the postal and telegraph service.

The *Reichseisenbahnamt* has been the executive body of imperial control.

Since the Prussian lines have been by far the dominating ones in all Germany, they have constantly served as a model for the other states; the machinery of their control has been substantially that of Prussia. A description of the Prussian machinery and of its work will, therefore, suffice for the whole of Germany. Of its early development, we have spoken. What of its later history?

By the constitution of 1850, the king and the two houses of the Landtag were designated as the dominating forces in the general control over the railways. They, however, delegated most of the power of actual control to certain administrative officials.

The Minister of Commerce, Industry, and Public Works, was until 1878 the chief of these. At that time this ministry was divided into two: (1) the Ministry of Commerce and Industry, (2) the Ministry of Public Works. To the latter was assigned the duty of the actual supervision of the private lines in Prussia and of the management of the state lines. He was given large powers over the direction of the construction and operation of the private lines, more especially over the aid that Parliament should grant to the companies and over matters of safety. His powers and duties have not since that date been materially changed, though the organisation of the machinery of state operation was in 1895 modified. It was, of course, impossible for the Minister of Public Works to operate the state roads; he could only have

general oversight of the special machinery of state management. This machinery was in 1879 changed and enlarged. The whole state net was divided into eleven districts, and for each there was established a Directory of Operation.

The directories of operation were by this act given very large powers. They were, to be sure, put under the supervision of the minister and the national railway council, but only in a general way. The purposes of such an organisation were to decentralise the management as much as possible, to secure the greatest possible efficiency. There had been something of the principle of decentralisation in the machinery of operation as formed in 1872. The state net was then not very large, though considerably diverse as to location. By 1879 it was at the point of a great extension, and each directory must have as far as possible uniformity of conditions of operation and traffic. In order that the principle of decentralisation might be extended, twenty districts, in the place of eleven, were in 1895 created; and, after the incorporation of the Hessian lines with the Prussian, in 1895–97, another was added.

Each directory of operation has had its own executive head, a president, and, apart from the general supervision of the Minister of Public Works, it has been an independently authoritative body. Its tasks have been numerous and difficult—to maintain the plant and to secure and move the traffic. There have, of course, been special departments at work within each directory and under its general supervision; they have been for the construction, operation, machinery, traffic, shops, and telegraph. And since 1895 the

president of each directory has been, *ex-officio*, the commissioner of the private lines situated within his district. These lines, just as the state's, have been under a unified supervision—that of the central office of the Minister of Public Works, and that of the intermediate office of the directory.

Advisory councils have been instituted, in order that the railway management and the public might know each other's position and point of view. These bodies have had the task of considering all important questions of traffic and rates, and of making suggestions upon them to the directories. They had their origin in the Alsace-Lorraine lines, soon after they became the property of the German Empire, in 1874. They were instituted in Prussia in 1882, by a law of Parliament; and their organisation was more completely formed in 1895. By 1897 they had been definitely organised and legalised in the other German states. Since 1895 there has been in Prussia, for the state lines: (1) a general advisory council, and (2) nine district advisory councils. In each of the other German states there has been but one advisory council.

The General Advisory Council (*Landeseisenbahnrath*), which is the adviser of the Minister of Public Works on all important matters of railway operation, especially traffic and rates, consists of representatives of all phases of Prussian economic life. Its members hold office for a term of three years Thirty of them are chosen voluntarily by the district advisory councils; they represent agriculture, forestry, trade, and manufacture, and are by law distributed among the provinces and cities of Prussia. Ten more members are nominated by the Minister of Public Works, to

represent the ministries of agriculture and forestry, trade and industry, finance, and public works. The directories must, by law, consult with the national as well as the district advisory councils. At its meetings, which are held twice each year, propositions from the Minister of Public Works, and questions of rates and classifications, are considered. Its decisions are, however, not authoritative, only advisory. It has created a standing committee, which collects and prepares business for the council, and which acts as the leading element when it is in session. Though it has been only an advisory body, its work has, nevertheless, been most vitally important. The fact that its members represent the best sentiment of the various interests in all parts of the kingdom, gives its recommendations and advice tremendous vitality.

The District Council (*Bezirkseisenbahnrath*), nine of which have existed since 1895, is more distinctly the adviser of the directory of operation, which is required by law to consult it. All its members are chosen voluntarily, to represent commerce, industry, agriculture, and forestry, by the various associations of the district. The size of its membership has differed with the economic importance of the district. This council, just as the national one, has advisory, not authoritative, power over the important questions of traffic and rates; upon all these questions, it must be consulted. It may make suggestions to the management of the lines. Its influence for harmony of relations between the railway management and the shippers, and for efficiency of the service, has been very important.

The General Conference has been another efficient

factor in the state's management. This body, unlike the others which we have considered, is not instituted by law. In its composition, it represents all the German railways, state or private, with a membership of approximately 300; their voting power is in proportion to the mileage of line which they represent. It has usually met yearly, at the call of the Prussian Minister of Public Works. It has made general supplementary regulations of the traffic orders, rates, and classifications. It has been most influential in the movement toward a complete uniformity of classification and rates.

The composition of the General Conference has been such that it could not easily act as a whole body, and it early formed a small permanent body—the Tariff Commission. The commission, which has represented a considerable number of railways—in 1908, for instance, fourteen of the principal German systems—has prepared the plans and business of the General Conference. Forming an important part of this tariff commission, has been a Trader's Committee. This committee has represented all the interests of the shippers; it has held comparatively frequent meetings, at which have been heard complaints or petitions from them. These two bodies have, in fact, been the vital parts of the General Conference, and they have been responsible for most of its excellent work.

A German Railway Traffic Association (*Deutscher Eisenbahn Verkehrs Verband*) was in 1886 formed, primarily for the purpose of making regulations or traffic orders for the guidance of the officers of operation—universal rules for the movement of traffic. It has represented the directories of the operation of the

Prussian state net and the administrative officers of the other German railways, state or private.

The *Verein Deutscher Eisenbahnverwaltungen*, another extra legal association, has performed efficient service, especially in the making of regulations for the interchange of traffic between the different railways, and in the creation of interline service. This association of railway managements, organised in Prussia as far back as 1846, has grown to be very large and influential; it now has in its membership many lines, a number in addition to those of the German states.

The machinery of the regulation by the state of the private lines, and of the management by the state of its own lines, has been elaborate and comprehensive. Its ideals have been to maintain the condition of maximum justice to the public in the case of private operation, and of maximum efficiency and cheapness of service in the case of state operation. State regulation, though it did not prior to 1878–79 prevent some abusive discriminations, has upon the whole been efficient. Its task has, however, become increasingly slight. The great and vital work in the state's relation to the railways has in Germany become more and more one of operation, not regulation; and the state's operation has, we believe, long been comparatively efficient. The success of the Prussian net has in many respects been worthy—the best illustration of state management in the world. This success has, however, been due to the fact that Prussia has possessed a marvellously efficient administration—to the fact that her king has, in spite of public sentiment, appointed and kept in office capable men. While questions of

railway finance and rates have at times become the subject of partisan politics, the officers of the State Railway Department have been independent of political fluctuations. The success of Prussia is clear, but it offers no proof whatever of success in the United States, where the administration is nowhere centralised and permanent, and where politics may still do wonderfully strange deeds.

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CHAPTER XII

RAILWAY TRANSPORTATION IN THE UNITED STATES

THE railways of the United States have been most notable for the extent of their mileage, for the rapidity of their growth, and for the capacity of their locomotives and rolling stock. They have not been as exclusively private as in Great Britain, though their building has been largely by private enterprise, and their operation almost entirely by companies. Their regulation by the state has been in all the fundamental points like that of the United Kingdom, if not indeed a copy of it. Their traffic conditions have been unlike those of the British lines, and not very similar to those in Germany.

(*a*) *Development of the Lines*

Throughout their colonial period, the people of the United States had no means of transportation but the natural waterway and the crudest kind of a highway. The inefficiency of this form of transportation may be seen in the fact that it required a week to travel from Boston to New York, and from a month to five weeks from Boston to the extreme southern parts of the provinces. There could, of course, be no such a thing as a long-distance overland haul of goods; and

that for persons was expensive and tedious, if not indeed dangerous.

The first efforts toward more efficient transportation and communication were in the improvement of the highway—the turnpike—, in order that the various small towns might be more closely connected with each other, and that these might have closer relationship with the vast rural sections. The turnpike meant longer distance hauls of persons and commodities. It also meant an extension of state activity. The old highway had been constructed and maintained solely by the local authorities, but the new one was the work of the state, even of the nation. The more general authorities assumed much of the burden of this improvement of the means of transportation, for political, as well as economic, reasons. The power of the nation was then comparatively weak; long-distance transportation would strengthen it. Many bills for national aid were presented to Congress in 1828 and later, but little assistance was actually granted to the turnpikes except in the case of the famous Cumberland Road between Washington and Wheeling—possibly to the Mississippi River—to which the nation granted by 1837 as much as $4,300,000. This highway had its beginnings in 1806, at Cumberland, Maryland, and it finally stretched its course to Vandalia, in Central Illinois. Had the railway not at an early date demonstrated its great superiority over the highway as a long distance carrier, the Cumberland Road would have ultimately established its western terminus in Missouri.

The new highway—the turnpike—, like many other things, came to the United States, in 1790, from

Great Britain. It was confined to the Middle and New England States; and here it proved its success as a local carrier, both in its influence upon the industries and in its financial returns.

The canal was another of the early forms of transportation. It, like the turnpike, was for the purpose of connecting the seaboard with the valleys beyond the Alleghany Mountains. Population was steadily moving from the East, where land was less free, over into the valleys of the Ohio and the Mississippi. The national turnpike greatly facilitated this strong westward movement, but a level route, rather than a short one, was needed. Two plans were, under the impulse of this need, made: (1) a canal connecting the Hudson River with Lake Erie or Ontario, through a territory which had no high ranges of mountains; (2) a canal between the Chesapeake and the Ohio River—a longer, less level, but more central way.

Efforts were made for the Erie route as early as 1792, and they came to a successful result by 1825. To perform this great task, the resources of the State of New York had been taxed. Its construction cost $5,700,000, a large sum for those days, but it brought great reductions in long-distance transportation rates. Though its charges were comparatively very small, it yielded, until 1852, a considerable profit. From this date, the competition of the railways became more vigorous, and after 1870 the canal had difficulty in bearing the costs of maintenance. This canal proved its distinct superiority over the turnpike as a long-distance carrier, even though it lost in its rivalry with the railway.

The Erie Canal, while it was the most notable, was

by no means the only one of importance. A number of States constructed canals, or gave aid to their building; from 1815 to 1837 there was wide-spread activity in canal construction. Their success, as an investment, was, however, not particularly good, and this fact, together with the scarcity of capital after the panic of 1837, meant that canal building would have to wait, if not entirely come to an end. The railway was in the meantime growing rapidly, in its extent and in the proof of its permanent superiority over the canal for practically all kinds of traffic. In speed, and in facility for loading and unloading, and warehousing, the railway was clearly the more efficient means of transportation, most certainly for long distances.

The railway came suddenly, in the midst of turnpike and canal building. The railway in the United States, unlike its early reception in Great Britain and on the Continent of Europe, had a royal welcome; a charter with almost unlimited powers and privileges came to it for the asking. When this new form of transportation and communication came, it was only an improved horse-car moved upon wooden rails. The most notable of these horse-car railways were those of the Mauch Chunk Railroad, completed by the close of 1827, and the Carbondale and Honesdale, a line constructed in 1828, by the Delaware and Hudson Canal Company. It was upon the latter line, that the first locomotive ever seen in the United States, one imported in 1828 from England, was operated, though without success. These two roads were, however, not in the strictest sense railways; they were only mountain lines operated by gravity and station-

ary engines, and they were used exclusively by coal companies for the movement of coal from the mountains to canal boats.

The honour of being the first real railway belongs to the Baltimore and Ohio. This line received its charter in 1827, was in the process of construction by 1828, and had in operation by 1830 about 13 miles. It was to be a common carrier, and as early as 1830 a decision was made in favour of the locomotive as the motive power.

The coming of the locomotive railway ushered in the period of the "American Industrial Revolution." To quote President Hadley: "On the fourth of July, 1828, Charles Carroll, last surviving signer of the Declaration of Independence, laid the first rail of the Baltimore and Ohio Railroad. One man's life formed the connecting link between the political revolution of the last century and the industrial of the present. . . . The second reaches wider and deeper than the first."

This pioneer railway grew slowly; it had in operation by the end of 1835 only 135 miles. The Charleston–Hamburg, chartered in 1829, with 137 miles in operation as early as 1834, held for a time the honour of being the longest individual line in the world. Of all the States, Pennsylvania was the most active in railway building, especially of coal roads; by 1835 there were open for traffic at least two hundred miles—about one-fourth of the entire mileage of the United States. The period 1830–40 saw the foundations of many small and disconnected lines, in practically all parts of the country. At its beginning there were but thirty-nine miles, by its end, 2755; and during this

decade Philadelphia was the centre. The next ten years had an important expansion, both of mileage and efficiency of service, to 8571 in 1850. New England was now the most active section. Her industries were more fully developed, and she had more surplus capital. The Middle States made some extensions, the Southern, fewer, and those of the Mississippi Valley had their first experience.

During the period from 1850 to 1857 railway building became still more energetic, and by 1860 there was a mileage of 28,919. The Middle and South Atlantic sections were during this decade the leaders, though the Mississippi Valley was active. The Eastern States filled in many of the gaps, and the Middle West constructed some of its main lines. Cotton and slavery did not absorb all the energies of the South Atlantic region; the desire of the West to connect itself with the East by great trunk lines was greatly aided in its realisation by the land-grants, which were made to railway construction by the States and the nation. With this growth of mileage, went the process of consolidation and combination. In 1850 most of the lines were very short, and practically none of them were connected with each other. There were no through lines of any importance outside of New England. By 1860 many of the trunk lines as they exist to-day had been created. New York and other important centres in the East had been joined by rail with Chicago. There were two notable examples of this process of consolidation; the New York Central and the Pennsylvania systems were both formed during this decade.

Some of the building of this decade contained a

large element of uncertainty and speculation, more especially in the Middle West, where population and industries were highly dynamic. The panic of 1857 brought still greater uncertainty and risk. The large, even lavish, grants of public lands to railway building were discontinued, at least for a time. For these reasons, railway construction came in 1857 to a practically complete standstill—a condition which substantially remained until the Civil War. The war and the special industries which it called into existence absorbed, of course, most of the energies and capital of all parts of the country. The only force that stimulated railway extension during the continuance of the war and immediately thereafter was to be found in the policy of the National Government to make grants from the public domain, upon a large, even vast, scale, to railway companies. Such a policy brought forth much activity in the far West, where the people were eager to connect the Pacific with the Mississippi; and from 1868 to 1872 there was much extension of the railway mileage, particularly in the upper Mississippi Valley. The foundations of much of this railway extension, like the foundations of other enterprises, were during the period 1865–73 none too securely laid. Political and business morals were at this time, as is usual after a great war, largely unsound; the speculative spirit was rampant. That a crisis should come soon, as come it did in 1873, was to be expected, and it put for a time a practical end to railway building.

By 1879, business had again adjusted itself, and there was expansion everywhere. From this date until 1884, when the force of another crisis made itself

felt in all phases of American economic life, the railway mileage increased to a great degree. The transcontinental lines were completed. They had been chartered early in the period of the national grants, 1862–72, but, with the exception of the Central Pacific, they were still unfinished. The panic of 1883–84, moreover, did not leave behind it a spirit of stubborn depression, and expansion in the railways soon again became vigorous. The achievements, as measured by the growth of the mileage, of the decade 1880–90 were marvellous, from 87,724 to 163,597—an increase of 75,873 miles. This increase in construction was to be found in all parts of a vast country; it was notably important in the southern, central, and western parts. The South was arising from the ruin and depression of the Civil War and Reconstruction. The Centre and the West were witnessing a gigantic growth in population and agriculture. Private capital was greatly aided by grants or loans from the national and local authorities.

Since 1890 the increase, while, with the exception of the great depression of 1893–96, steadily important, has not been so large; and, in reasonable probability, it will not be remarkable in the future. Most of the big lines have been constructed. It only remains to construct the necessary short branch lines and improve the old ones. The chief work of the companies has since 1890 been in the improvement of the old mileage, much of which had been inefficiently built. The rebuilding of the lines, by taking out the grades and curves, and by displacing wooden structures with those of stone and steel, has been a tremendous task, to say nothing of the work of constructing second,

third, and fourth trackage, and of supplying efficient rolling stock.

A clear vision of the growth of the lines may be had in these mileage figures of the single track:

1830	39
1840	2,755
1850	8,571
1860	28,919
1870	49,168
1880	87,724
1890	163,597
1900	193,345
1909	236,868

These figures make a remarkable exhibit of expansion. If the mileage of second, third, fourth, and yard tracks were added, the total would be almost 350,000. In 1908 the United States possessed about two-fifths of the mileage of the world, and 15% more than that of all Europe; she had 233,677, as compared with 197,381 for Europe, and 595,841 for the world. The American railway industry has, therefore, become tremendously large—the greatest of all industries. Its total capitalisation is practically $18,000,000,000, probably as much as one-eighth of all the wealth of all the people of the United States. It has in its employ over 1,500,000, largely men, to whom it pays in a single year wages amounting to above a billion dollars. The enterprises which manufacture and trade in railway supplies and equipment, and whose prosperity is fundamentally dependent upon the business of the railways, employ perhaps as many as 1,500,000.

This mileage is owned by approximately 2500 different companies, and operated by about 1000. While as many as 1000 different companies operate the lines, the management of the larger part of the mileage has gradually formed itself into certain well-marked groups of territory: (1) The New England, which was the first group to form, with Boston as the centre, and which has long had more uniform conditions of traffic than prevail elsewhere in the United States; (2) the Trunk Line Territory, which extends from the eastern seaboard to the Mississippi River, as far south as the James and the Ohio, with New York, Philadelphia, Chicago, and St. Louis as its centres; here the Vanderbilt and Pennsylvania systems dominate; (3) the Southern, where the Morgan interests—the Southern Railway, etc.—have the chief control; (4) the Granger and North-West Territory, which extends from Chicago and St. Louis westward and northward, with these two centres as the dominating forces; here the Hill interests, in the Chicago, Burlington, and Quincy, and the Great Northern and Northern Pacific, play the largest rôle; (5) the South-West Region, where the Harriman-Gould interests lead. The grouping as to ownership and control has, to be sure, varied, but that of traffic conditions has remained substantially the same for a good many years. There have been many thousands of owners of the capital of each of these groups, but the controlling personalities have for a few years been those who hold large stock in the systems known as the Vanderbilt, the Pennsylvania, the Morgan, the Hill, the Harriman, the Gould, and the Moore. These interests have come to control as much as two-thirds of the great total mileage.

The capitalisation of the lines of the United States, though oftentimes said to contain a large amount of water, has been small as compared with that of most other nations. The fact that the roadway has been for the larger part given to the companies, either by citizens or the various forms of the government, has meant a smaller cost of building; and the roadway is much less expensive in a new and thinly settled country, even though it must be purchased. The building has in many, in fact in most, instances been done as cheaply as possible, largely for present needs only. There have been many heavy grades and curves left in the roadway, and the stations and bridges have often been inefficiently cheap. The people of the United States have constructed their railways, as they have most of their dwellings and storehouses, for the minimum of outlay. In the older and more thickly settled countries, as, for instance, Great Britain, the building has from the beginning been done with greater care for the future. All these facts explain in part the comparatively small capitalisation of the lines of the United States.

The size of their capitalisation and the changes in it may best be seen in the per mileage figures of representative years:

1880	$57,477
1890	58,659
1900	61,490
1905	65,926
1907	70,705
1909	74,289

It is seen that the increase has for practically thirty years been very gradual, with the exception of the period since 1905. That there should have been an increase, was to be expected. There has been a rise in the price of many things, notably of land; and the building has been done with much greater thoroughness as the years have passed. The work of improving the old lines, much of which has in recent years been done, has been expensive. The building of a very considerable mileage of second, third, and fourth tracks, and the enlargement of the equipment per mile, have necessitated an increase in the capitalisation. The important increases, which came during the latter part of the period under consideration, were due to these causes, not to any great amount of "stock-watering."

The relative smallness of the American capital per mile is clearly shown by the following approximate figures for the year 1907:

All Europe	$121,500
All other lands	66,500
United Kingdom	273,000
England (alone)	313,000
France	137,200
Italy	127,000
Germany	109,000
United States	70,705

The cost of construction and equipment has, therefore, been relatively small. Has that of operation also been comparatively slight? The most accurate answer that can be made is found in the coefficients of

operation—the ratios of operating expenses to operating income—, which we here present:

1880	60.78%
1890	65.80%
1900	64.65%
1905	66.78%
1906	66.08%
1907	67.53%
1909	66.16%

If we take the year 1906 as a fairly adequate standard of comparison, we find that the United Kingdom had 62%, Germany 65%, France 53%, and Italy, 75%. The cost of operation for the lines of the United States has upon an average been higher than that in Great Britain or France, but not materially different from that in Germany. The coefficient in Germany was as low as 54.8% in 1895, and as high as 74.62% in 1908, with 68.99% in 1909. The wages of American employees have been substantially higher than anywhere in Europe.

With the condition of comparatively small capitalisation and not very high cost of operation, we should, under normal conditions of traffic, expect to find fair dividends. The conditions of the traffic of such a vast net have, however, not as yet been particularly favourable, and consequently dividends have not upon the lines as a whole been high. What these were prior to 1887, we have not been able to ascertain; the facts of railway operation, which was till then under the control of the States, not the nation, were not adequately collected. The average rate of dividend

upon all the stock was 1.95% in 1889, 1.65% in 1895, 2.67% in 1901, 3.57% in 1905. A considerable portion of all the stock did not, however, receive dividends, as may be seen from the following figures, which are relatively typical:

	Percentage of stock receiving dividends.	Percentage received upon this stock.
1888	38.56% (of all the stock)	5.38% (average)
1895	29.94% " " "	5.74% "
1900	45.66% " " "	5.23% "
1905	62.84% " " "	5.78% "
1907	67.27% " " "	6.23% "
1908	65.69% " " "	8.07% "
1909	64.01% " " "	6.53% "

If we compare the average dividends paid upon all the stock of the railways of the United States, we find that the American lines have made relatively small net profits for their share-holders. The Mediterranean Company, in Italy, paid during 1885–1901 an average of 5.15% and for the next four years, 3.3%, while the Adriatic paid 6.53% and 6%. The big companies in France paid during 1885–1908 practically 4%, while in Great Britain the average was slightly under 4%. These three countries had, moreover, a much larger per mile capitalisation than the United States. In Prussia the dividends made during 1881–95 an average of 5.35%, and for 1897–1906, 7%, but from these must be deducted the interest on the railway debt, of approximately 3%. The

net dividends on the Prussian state lines were, therefore, for the period 1889–1905 only slightly higher than those on the lines of the entire United States. The Prussian capitalisation was, however, considerably larger.

Some explanation of the comparative smallness of the American dividends may be found in the vastness of the territory over which the companies must operate and in the slight density of population and industries. The people of the United States have come to possess a great mileage, but their immense area demands a large net. Their mileage of railway per each unit of one hundred square miles of territory has been: 2.96 in 1880, 5.51 in 1890, 6.51 in 1900, 7.87 in 1908, and 7.98 in 1909. Certain parts of their area have a very large mileage, as, for instance, New Jersey with about thirty, Massachusetts, twenty-six, and Pennsylvania, twenty-five; and their whole domain has a larger mileage than that of all Europe together, which is approximately 5.2. As a whole the United States has, however, only a slight mileage in proportion to territory—7.87 in 1908, with 25.6 in Belgium, 19 in the United Kingdom, 17 in Germany, 14.3 in France, and 9.3 in Italy.

Upon the other basis of measurement—that of mileage of railways per each unit of 10,000 population —, the United States makes a different exhibit. The growth of railways has upon this basis been: 17.51 in 1880, 26.05 in 1890, 25.44 in 1900, 27.04 in 1908, and 27.01 in 1909. Europe as a whole had in 1907–08 only 4.6, with 5.6 for Great Britain, 5.6 for Germany, 7.6 for France, 3.2 for Italy, and 3.9 for Belgium.

(*b*) *Speculation*

The construction of such an enormous mileage has, however, been attended by many uncertainties and risks; and risks always afford vast opportunities for speculation, even manipulation. The growth of the population has been unparalleled, but there have been much unevenness in its annual increase and many disturbances in its adjustment. The productive power of such a people at work upon such a vast and varied domain has, of course, been large, though rarely constant. Their wants and tastes have likewise been upon a great scale, but highly changeable, if not indeed capricious. That the railways should grow spasmodically, and that their earnings should be highly fluctuating was, therefore, to be expected. The stimulus arising from the grants of land by the States and the nation has, moreover, been an element of uncertainty, and consequently of speculation. Under the influence of these grants, much mileage was built in sections which could not for many years make its operation profitable, even if self-sustaining.

During the more prosperous periods, the American railways have generally been able to pay the interest on the bonds, as well as the expense of maintenance and operation, and to make some returns to the shareholders. They have, on the other hand, suffered tremendously when periods of depression and fright have come. Then the least fortunately located and least efficiently managed have not been able to meet their compulsory obligations in the form of interest on their bonded indebtedness. The courts have then, of necessity, come to the protection of the bond-

holders, and to the temporary relief of the stockholders, and have placed the operation of such lines, for a time, in receivership. There have been in the history of the railways of the United States three notable periods of depression and inability to meet obligations, when the mileage under receiverships was large: 1873–78, 1885–87, 1893–97. During the eighteen months which came to a close on July 1, 1894, almost one-fourth of the entire mileage was in the hands of the courts. During the period 1876–1910 129,233 was the mileage placed in receivership by the courts.

The frequency and extent of receiverships have in a large measure indicated the prevalence of the speculative element in the railway construction and operation; and the existence of receiverships has greatly stimulated the purchase of railway stocks for speculative purposes. Such trading has since the panic of 1883 been on a very large scale. During the decade ending with 1893 the total yearly sale of stocks was never below 75,000,000, and it ranged as high as 100,000,000. A part of this was, to be sure, purchased for permanent holding, by those who desired to form large systems, but a very considerable portion was bought solely for speculation. The large figures for 1883–93 were, however, small as compared with those of the annual sale of shares during the five years, 1904–08, when trading in the Union Pacific, and Southern Pacific, and the Reading, etc., reached the great sum of nearly 280,000,000 shares. These gigantic sales during the first decade of the new century, at a time when railway construction and operation were comparatively stable, were made in large part to those who were

putting forth tremendous efforts to create new systems. Now since most of the great systems have already been formed, and since the power of the national control has been wonderfully strengthened by the revisions of the Interstate Commerce Act, in 1906 and 1910, we have every reason to think that the speculative purchase of railway shares, or the purchase for the purpose of still wider consolidation, has finally reached the point of comparatively slight significance.

Speculation in the railway business has in some form been fundamentally necessary. Railway transportation is peculiarly subject to fluctuations in its traffic and earnings; its activity and prosperity are so intricately bound up in those of all the phases of the economic life of a people, that its returns are necessarily uncertain. It must have a large permanent investment, the returns of which may or may not pay its obligations. In a country whose economic life has been so highly dynamic as that of the United States, the element of uncertainty has, of course, been all the more prevalent. For such a country, speculation, when it is compelled by law to assume full responsibility for all its acts, renders excellent service; it bears the burdens of the risks and, therefore, causes the business to be more stable.

There has, to be sure, been much unresponsible speculation in the shares of the American railways. Such speculation is nowhere defensible. There has also been much manipulation, by the "insiders," as well as the "outsiders." Manipulation is everywhere wrong. Practically all the blame has been laid upon the railway management, while, in fact, much of it

should be placed upon the Government. The States in granting charters to railway companies have for the most part exercised little care over the matter of speculation or manipulation; they have not been regulated or prohibited by the general laws. The American States, unlike the French Government, have acted upon the theory that competition in railway transportation makes all things well; and such a theory is to blame for many of the worst evils which have existed in the railway management of the United States.

For References, see Chapter XVI.

CHAPTER XIII

RAILWAY TRANSPORTATION IN THE UNITED STATES (*Continued*)

THE policy of the people of the United States has been, in the main, to build railways through private enterprise. In this respect their railways have had an experience similar to that of the British. The States have made grants to private companies of the right of way; and these have been freely, lavishly, and even carelessly, made. The roadway has oftentimes been given by citizens, municipalities, or counties—a gift never made to any of the British companies. In addition to these gifts, the States and the nation have rendered very substantial aid in the construction of the lines. State assistance has been very frequent and important; state operation has been only occasional and insignificant.

(*a*) *State Aid*

Aid from the State came soon after the introduction of the railway. This became a notable feature before the first decade of the railway in the United States had come to its end. The States had since 1814 made grants of aid to the turnpike and canal companies, as well as to banks. That they should do this for the

railway, was the thing to be expected. The policy and spirit of State assistance received great stimulus from the decision of the National Government, made in 1837, to distribute to the various States the funds which it held as a surplus, and which had accrued from the sale of parts of its public domain. The coming of these gifts from the nation added to the zeal of the State administrations to render assistance to internal improvements in general and to the railways in particular.

Much of this State aid was, however, bestowed without clear intelligence or care. In numerous instances it was granted to lines which could not for many years at least pay their maintenance and expenses of operation, to say nothing of their compulsory obligations in interest on their bonds. The public officials had too long been schooled in a false theory of credit and banks, to understand at all clearly the proper relations of the State to the finances of a railway. For a generation at least they had created banking institutions, much of the stock of which the State had taken in exchange for the charter right to do a banking business, and little cash had been paid by the private holders for their shares. For the State to grant its credit to a railway was, therefore, a very easy thing; and, when it came to possess as a gift a considerable amount of cash, State aid became a lavish thing.

The States had also in a number of cases public lands to grant to the companies—other gifts to the States from the nation. As early as 1836 propositions had been made for the nation to make large contributions to railway construction, indirectly through the

State administrations, but it was not until 1850–51 that these materialised. Congress now made a grant of almost 4,000,000 acres to the States of Illinois, Alabama, and Mississippi, for the specific purpose of aiding the building of the famous Illinois Central and the Mobile and Ohio. The Gulf cities must be joined to Chicago by a trunk rail, and Congress was ready enough to render the assistance necessary to secure such a result, though it should be done, according to the then prevailing theory, through the States. This grant allowed the railway six square miles of territory for each mile of railway constructed. A strip twelve miles wide, one-half on each side of the road-bed, was set apart from the public domain; the company could have at the maximum one-half of this strip, and the remainder could not be sold for a price less than $2.50 per acre—a scheme for enhancing the value of the public land, as well as to assist the construction of the railway. When once adopted by Congress, this policy of the nation making grants from the public domain indirectly through the States became the general rule, and between the middle of the century and 1871 practically seventy-five other similar grants were made.

Aid from the States usually came only in those sections where the industries were in a backward condition, and where private capital was neither abundant nor eager to invest in uncertain fields. It came particularly in the West and the South; in New England, only one State—Massachusetts—gave assistance to the construction of lines. There were in all practically twenty States that gave aid in some form. In a number of States, notably Illinois, Indiana,

Michigan, Georgia, Tennessee, North Carolina, South Carolina, etc., comparatively large public debts were incurred for this purpose.

The National Government also contributed aid to the companies. The first grant was made by Congress in 1862, for the purpose of assisting in the building of a line from the West to the Pacific coast. The Civil War had clearly demonstrated the political necessity of such a line, and its economic results would become significant with the years. To the Union Pacific, which built the line from Omaha to Ogden, 12,000,000 acres were offered; to the Central Pacific, which built from Sacramento to Ogden, 8,000,000; to the other companies which had a part in the construction of the first great transcontinental line, practically 13,000,000 —making a grand total of almost 33,000,000 acres for the first line that crossed the Plains and the Rockies to the Pacific. Nor was this all. The Northern Pacific was to have nearly 46,000,000 acres; and to a number of other companies large areas were granted. The process of Congressional grants from the public domains continued until 1871. The total grants made by the National Government, indirectly through the States, 1850–62, directly, 1862–71, constituted the vast area of almost 160,000,000 acres—a territory as large as that of a number of the average sized States together.

The grants made directly to the companies were much larger than those through the States. The cost of the construction of lines across the mountains was much greater than in the Mississippi Valley, and the lands in the national domains which were outside of the States were generally much less valuable than

those granted to the Illinois Central. The direct grants were usually after the method of those made through the States—of six square miles of land for each mile of line built, with an equal amount of land reserved for sale at a minimum price of $2.50 per acre. In a few cases, especially in the grants to the companies which constructed the first line to the Pacific, the amount of land per mile of line was greater—as much as ten square miles.

Not all of this vast area finally came into the ownership of the companies. A part of it reverted to the Government. The grant was, of course, conditioned upon the actual completion of a certain minimum mileage. A time limit was fixed within which the work must be done. Unless Congress should extend this limit, all the land in excess of the amount to which the company was entitled, in proportion to its completed mileage, should revert to the nation; it should really remain in its possession, since no section was actually transferred to the ownership of the company until a mile of railway had been constructed. Of the large amount conditionally granted, practically 110,000,000 acres have passed into the possession of the companies, and they will perhaps come into the ownership of more. As early as 1871 attempts were made in Congress toward the forfeiture of large amounts of the grants, but nothing was done until 1890. Now a law was passed, which declared forfeited all the lands in excess of the amount to which the companies were entitled on the basis of the mileage of their completed lines; and all the claims which have been made since 1890 have been for the mileage already constructed when the law of forfeiture went into effect.

The National Government granted aid to railway building in still another form. In a number of instances, especially in the case of the companies which built the first line to the Pacific, a virtual money grant was made. These companies were, by the laws of 1862 and 1864, given the right to sell United States thirty-year 6% bonds, to secure a part of the construction capital. They could after the completion of a certain minimum mileage receive a certain amount of these bonds per mile; the amount, depending upon the difficulties of construction, was different for different sections of the line. $64,623,512 of these bonds were in all advanced to the companies which constructed the first line to the Pacific. These were only advanced to the companies, and they were covered by a second mortgage upon their property. By 1899 the larger part had been repaid with interest.

The aid which the nation has contributed to the construction of railways in the West, the far West, and the Pacific coast region has, therefore, been tremendously large. It, however, looks larger as we see it from the point of view of to-day than it really was to those who voted it between 1850 and 1871. It now seems enormously extravagant. It then appeared as a comparatively small consideration. Such action on the part of Congress brought transcontinental transportation a good many years earlier than it would have come without its aid; it brought the condition of a united country and of a wonderfully prosperous people, even though at great public cost, perhaps a quarter of a century earlier. Is not such a result enormously valuable?

(*b*) *Competition and Combination*

The railway had from the beginning a peculiar right and privilege—that of eminent domain, to force the sale of property for its roadway. Apart from this peculiarity, the railway business was for a number of years in the United States, as in Great Britain, regarded as entirely ordinary. It was assumed to be, like any other branch of business enterprise, a thing which competition could efficiently regulate. It was thought that the charges of railway service, like other prices, would be satisfactorily reduced by the force of competition downward to the point of the cost of its making, and that, whenever this charge became less than its cost, the service would proportionately decrease.

Such an assumption has, however, long since proven itself incorrect. The railway business is not essentially competitive. It is, from its very nature, and from the fact that it necessarily requires a large accumulation of capital, fundamentally monopolistic. It must have a large element that is fixed and is, therefore, independent of the volume of the traffic. It must continue to operate, even though it may not pay dividends. It must pay the interest on its fixed or bonded indebtedness and maintain the plant—a large expense—, whatever the condition of its traffic. The fact of the existence of a rival line does not change its fundamental nature or its obligations to pay a certain fixed sum. The competition may eliminate the possibility of dividends upon the stock of either line. It may even make it most difficult, if not indeed impossible, for either to pay the interest on its fixed

debt and to maintain its lines in a state of efficiency. It may continue for a time to move a traffic that pays a rate really less than the cost of its haulage and the fixed charges; it must have business. Either, or both, may become unable to pay fixed charges and maintenance, and consequently go into bankruptcy, but this only makes the competition more irresponsible and, therefore, more disastrous.

Such was the condition of many of the lines during their days of active competition, and such will, we think, always be the condition of railway transportation at work under severe rivalry. The results of such a situation were uniformly the same; competition in the end eliminated itself, and the rivals combined. The form of the combination was different, but the results were substantially the same.

The process of consolidation had been at work a number of years before competition became at all active or vigorous. From 1850 this process had transformed many short and disconnected lines into larger and still larger systems of lines. Prior to this date the companies had only slight capital, and they built but small stretches. Their service was very inefficient and expensive. Nominally they were competitors; actually they could not compete on any important scale. It was in fact not until practically 1870, when consolidation had achieved a number of large systems, that vigorous competition came into play.

Combination of the railways of the United States has been along two directions: (1) the consolidation of many independent, and disconnected, and non-competing lines, into one continuous long-distance

one; (2) the combination of competing systems. It was in the first direction that the work of creating the Vanderbilt (the New York Central Lines), the Pennsylvania, and the other trunk lines, during the period 1850–70, was carried on. Consolidation of the small lines must be brought about before it was possible to have efficient service. No system possessed a continuous line of as much as four hundred or five hundred miles, or even this total mileage, until after the middle of the century, and it was practically twenty more years before a net of 1000 miles had been formed, and still twenty more before the figure had grown to 5000. It has been but a few years since that it came to be so enormously large as 10,000, 15,000, or 20,000, and more. The process of consolidation has, therefore, been vigorously at work, and the results of its efforts have everywhere been great and advantageous. Many small disconnected lines could not perform the service needed by an active people living upon such a vast area. They had need of a great continuous railway which could bind many different and far separated sections into a continuous one. The eastern communities must have the raw materials of the central and western parts, and these, in turn, must have better and cheaper finished products from the Atlantic seaboard.

The work of consolidation, however, made it possible for severe competition to come into play. This eastward and westward traffic was not yet sufficiently large or profitable to enable all the newly created trunk lines to prosper. With the extension of the New York Central Lines and the Pennsylvania from New York City to Chicago, the struggle for long-

distance traffic began. The competition which may exist between two small roads can never mean very much; that between two great lines is always of large significance. This rivalry was soon made much more intense by the completion of two more trunk lines from New York to Chicago—the Baltimore and Ohio and the Erie. The rivalry which existed between these four great systems for the movement of the eastward and westward traffic became active by 1855, but it was under substantial control until practically 1870. Now a rate war of the first magnitude came, with all its disastrous results. The speculative spirit, which was so prevalent during the years 1868–73, and which constructed a large mileage of new lines through sections the traffic of which could not for many years possibly pay the fixed charges, maintenance, and operating expense, only made the situation more acute. The panic of 1873 and the period of depression which followed caused, moreover, the rivalry to become more intense; they greatly decreased the volume of traffic, for which the lines were all fighting.

Such a rate war continued until 1877, when all the competitors became exhausted. It brought ruin to the companies, and little advantage to the shippers as a whole. To some shippers it, to be sure, meant low rates. To others, notably those located at the intermediate non-competitive points, it brought the condition of still higher charges for transportation service; the chief burden of the maintenance and fixed charges rested upon these shippers, in favour of those at the great competitive points. It was, in fact, during these years of intense competition, that abusive discriminations were at their worst. These

were the "dark days" of the history of the American railways.

Such a situation could not last very long, and it came to a close, as such situations must always do, in combination. This combination assumed, at different times and in different places, one of four forms: (1) an agreement to maintain rates at a certain minimum, and for each company to do whatever business it might be able to secure at these rates; (2) a pool of the traffic; (3) a pool of the territory; (4) a pool of the earnings.

The agreements among the rivals to maintain rates were rarely kept. The desire of each to carry more traffic was oftentimes too strong. Rate agreements were effective only in times of great prosperity, when the traffic was sufficiently large for all the competitors. Pools of the traffic and its territory were more effective. It was, however, not infrequently found to be very difficult, if not impossible, to form such pools; and, when this was the case, the pool of the earnings was the one created. The companies were allowed to do as much business as they desired to, and their combined earnings were divided between the parties to the agreement according to a certain percentage.

Combination in the form of the pool could, of course, work arbitrarily, but so could competition. Combination unquestionably placed in the hands of a few managers enormous powers, but, in spite of some notable examples to the contrary, they generally worked for the best development of their lines, and their traffic. The pool, in any of its forms, was almost from the beginning opposed by the people. The process of the consolidation of non-competing

lines gradually created opposition in the minds of the public, though in reality such a process was working wonderfully to their advantage. The mere fact that the new lines possessed tremendous power was, as they understood it, sufficient cause of opposition. The combination, by means of a pool, of two or more such big lines, was a thing still more strongly opposed by the popular mind. Consolidation in no way eliminated competition; combination meant little or no competition. Competition in railway transportation, the fetich of the early British and of the American public opinion, must be maintained at any cost, though the people of the Continent of Europe had abandoned it a good many years since and the British had come slowly to have slight affection for it.

By far the most successful form of the pool was that of the earnings. Such a combination usually allowed each of the companies to keep in its treasury about 45% of its passenger earnings and 50% of the freight, while the remainders were divided between them. It gave freedom to each to accept whatever traffic was, without solicitation, presented to it. This form of combination came into fairly general use early in the seventies, and, with one short intermission, it was comparatively successful until the traffic association came, in the eighties, to take its place.

The first important illustration of a successful one was, in 1870, in the case of the Chicago–Omaha pool. By this the rival railways, which were practically of the same length, agreed to eliminate competition and to work in co-operation with each other. The success of the Chicago–Omaha was from the first distinct; and its example was widely followed in other parts of the

country—in fact in practically all parts, in the form of a pool or traffic association. The Southern Railway and Steamship Association was created in 1873–75. This came later to cover the territory east of the Mississippi River and south of the Ohio and Potomac. Under such a pool, all rates for the competitive traffic were determined by an executive committee. The traffic and earnings were also pooled. The South-Western Association came in 1876; and from 1876 to 1887 there were formed the North-Western, the Western, the Colorado, the Pacific Coast, and the Transcontinental, associations.

The traffic between the Central West and New York and other eastern centres had the keenest competition of all. Its pooling was, therefore, by far the most difficult to make and to enforce. A pool was finally, after four years of ruinous rate wars, effected between the chief lines of this territory. An executive committee of the Trunk Line Association, composed of the Pennsylvania, the New York Central, the Erie, and the Baltimore and Ohio, was created. The west-bound traffic from New York was in 1877 apportioned between these four lines according to a certain percentage; that of the east-bound, in 1879. During this year a joint executive committee was authorised to supervise the joint interline traffic, to divide the local competitive traffic, and to establish the "differential" rates which Philadelphia and Baltimore should have as compared with those of New York and Boston. The task was so complicated and difficult, that it was never performed with entire satisfaction.

For a number of years before 1887, when Congress forbade pooling, practically all the important lines in

the United States belonged to some form of a pool or traffic association. They, moreover, proved themselves to be of great benefit to shippers as well as carriers; they eliminated ruinous competition; they maintained more stable and satisfactory conditions of traffic; they did not prevent an almost constant decline in freight rates. Their evident benefits did not, however, save them from popular condemnation. A number of the legislatures declared them illegal, and Congress, in 1887, forbade them—laws from which the people have really suffered to this day. Even before the passage of these statutes, the courts had refused to enforce the provisions of the pooling contracts, upon the assumption that they restricted trade.

The pool was now specifically illegal, and it was discontinued. Various traffic associations, in which pooling was the principal element, were also abandoned or reorganised. The new traffic association, which was now formed, contained no provision for pooling; and rate wars came again to curse the railways and the shippers. The newly created associations had, therefore, excessively great difficulties in making themselves effective, particularly during the period of the great depression of 1893–97, when the traffic was slight.

Two of the most important of the new associations were the Trans-Missouri Freight and the Joint Traffic. The former had control of the competitive traffic of eighteen roads operating west of the Missouri River; the latter, that of thirty-two roads in the Central Traffic and Trunk Line territories. The Trans-Missouri was organised in 1889, and by 1892 an action was instituted against it on the ground of its alleged

contravention of the national anti-trust law of 1890. The Supreme Court of the United States, reversing decisions of the Circuit Court and the Circuit Court of Appeals, ruled, in 1897, that the anti-trust law covered the railways whenever they made agreement, as to their traffic or rates. The Trans-Missouri thus became illegal. The Joint Traffic was finally organised in 1896, and almost immediately a suit was brought against it upon the charge of its violation of the Interstate Commerce Act and of the Sherman Law. The Supreme Court held, in 1898, that this association, as the Trans-Missouri, was in contravention of the Sherman Law, and was, therefore, illegal.

Since 1897 and 1898, any combined action in the making or maintenance of rates has been illegal. The railways, rather than return to the old condition of disastrous competition, have consolidated and combined more rapidly and upon a larger scale than ever before. Their combination has now assumed a more permanent form, either (1) that of the purchase of competing lines, or (2) that of leasing them, or (3) that of a "community of interest." "Community of interest" has become notably prevalent and efficient. When the same men hold the controlling stock in all the competitive lines, active competition cannot influence rates. The traffic associations have been reorganised, and they have since 1898 performed an important service, though they have not made or maintained rates. In law each railway must by itself make rates; in actual fact, the traffic officials of one line consult those of another.

Competition between the lines has, therefore,

largely disappeared, notwithstanding the many efforts on the part of the States and the nation to maintain it in its full vigour. The railways of the United States have finally come to the same status—practical monopoly—which the British had forty years ago, and which the French had from the beginning, the German and the Italian after only a few years of experience. The railway business, to be efficient, must be on a large scale, and the great systems must work in the manner and after the spirit of co-operation. The process which has converted thousands of small, disconnected, and inefficient lines into big systems, whether of one form or another, has been one of the most significant things in the history of railways of the United States. In spite of one proclamation of illegality or another, they have come to group themselves according to the economic divisions of a vast and varied country—into practical monopolies. The very eagerness of the public and the legislator to maintain all the phases, good or bad, of competition has been a strong factor toward the complete elimination of its beneficial elements—toward the condition of a complete monopoly.

A monopoly railway, just as a monopoly in any other field of business, has the full power to fix rates, so far as the producer of a service or goods possesses such power. The consumer of the service is, of course, always present, and the fact of his presence means a great limitation upon the absolutism of the monopoly. The government should also be present in a general way, and its presence should always be appreciated. Can a monopoly producer of railway service, where no state regulation exists, absolutely fix the price in

spite of the wishes and interests of the consumer? In the abstract, yes; in the concrete, no. The prosperity, that is the maximum profits, of such a producer depends upon how much service he sells, and is calculated by multiplying the amount of the sale by its price per unit. The quantity of service purchased by the consumer has, under practically all, if not all, circumstances, more or less of elasticity; he buys more at a lower price, less at a higher. The far-seeing railway manager must understand this much—that his present prosperity, most certainly his future, is fundamentally dependent upon the prosperity of the consumers of railway service. He will reduce his rates, in order to secure more traffic, since generally it costs him less per unit to move a larger volume of traffic than a smaller. Our assumption has left out the force of the presence of the government; and this should certainly be strong enough to make it impossible for a short-sighted railway manager to do much harm to the public. The actual facts of experience in Europe and in the United States, moreover, prove that the restraint of competition or its elimination has not often meant an increase in the rates or a decrease in the efficiency of the service.

The systems of the United States, while they are largely monopolistic so far as the producer of railway service in a certain territory is concerned, are still and will long continue to be under the force of competition at certain great strategic centres. They are also under a still more powerful force—that of the competition of markets with markets. The fact that the products of many sections of a country, yes of the world, may compete in their sale on the same common market

will always have a profound influence upon the railway management. This competition of markets, which is in the main never so excessive as to become ruinous, and that of the big systems of railways at strategic points, which is also largely sane, together with the fact that most of the monopoly systems are managed by far-seeing men—all these facts make the American shipper comparatively secure from maltreatment on the part of the carrier, not to mention the control of the nation, which has become very efficient.

For References, see Chapter XVI.

CHAPTER XIV

RAILWAY TRANSPORTATION IN THE UNITED STATES (*Continued*)

THE problems of traffic strike to the foundations of the economic life of a people. Their social activity, their natural resources, and the extent of the area upon which they live, are fundamental in the traffic of railways.

(*a*) *General Conditions of Traffic*

The railways must in the United States cover a territory practically as large as all Europe, though its density of population was in 1909 only 46 as compared with 107 in Europe. The fact of the greatness of the area in large part explains the relative largeness of the train-load in the United States. From the point of view of climate also, the American traffic is upon the whole very different from that of Great Britain, Germany, France, or Italy. The whole range of climate, occupation, and products is covered in the United States, while in the small countries mentioned the range and consequently the variety are much smaller. The east, the west, the north, and the south are all well marked and differentiated in the United States.

The climate and the topography of the United States have meant that the important routes of traffic

should be, unlike those in much of Europe, eastward and westward, with only secondary routes northward and southward. The hauls have been long and over great ranges of mountains, those in Europe, short and rarely over the Alps. The centres of raw materials have generally been far separated from those of the making of finished goods, and these in turn well distanced from the places of their greatest demand. The places where culture has most thoroughly crystallised itself have usually been far apart. The passenger traffic has, therefore, been comparatively light, that of commodities, heavy. The wants and tastes of the people of the United States have also had their influence upon the freight and passenger traffic alike; the one has been more largely for the lower and less finished products, the other, relatively much smaller than in a number of the European countries.

In the movement of the traffic of the United States, especially the freight, water has played a rôle, but not so important a one in recent years as formerly and as in France and Germany. Water competition is in some sections still active. In the South Atlantic States, the coast-wise sea traffic has been and continues to be extensive and important. Some of the steamers operating within this section have come into the ownership of the railways, but still the ocean rates are for some commodities the vitally important, if not the controlling, influence in railway rates. The transcontinental traffic has also been profoundly influenced by the steamers that operate through the Suez Canal, or via Colon, where transfer is made to the Panama Railway. The inland water traffic has, on the other hand, become relatively less important since the early

days of the railway. A vast interior has no navigable rivers or canals—a great domain practically without waterway transportation. The United States offers in this particular a sharp contrast with France and Germany. The continent of Europe north of the Alps is abundantly supplied with navigable rivers, and these have been supplemented by many miles of canal.

The influence of the inland waterway upon the railway may be seen in the figures of their mileage and the tonnage. In 1906 the railway mileage was practically 7.7 times that of the navigable rivers and canals; the mileage of the latter was about 28,000. The total tonnage of the railways was in 1904 about 12.3 times that of the rivers and canals—1,631,374,219 for the railways, 132,000,000 for the rivers and canals. This tonnage did not, however, include that of the Great Lakes, which was important; the total water-borne traffic was in 1909 about 256,000,000 tons.

The competition between the interior waterways and the railways has, however, been very slight as compared to its full possibilities. The methods of water transportation have in many places not kept the pace demanded by efficient service, nor have its rates decreased in proportion to those of the railways. Almost from its beginning the railway has offered a lower and lower rate for the hauling of goods. The railway rates have declined from practically seven cents per ton per mile to .73 cents, while the water rates have decreased only slightly. There has, moreover, been another reason for the decreasing vitality of inland water competition; the railway has followed

consistently the policy of the purchase of its rival, the water carrier, notably within recent years. The control of the water-borne traffic of many sections is now effectively in the possession of the railways. They dominate in most of the packet lines and the larger part of the grain ships that operate upon the Great Lakes. On the Pacific, the majority of the coast-wise steamers and packets are in their hands, and their ownership of the steamers of the South Atlantic and the Gulf has come to be extensive. A consolidated coal and coke company has, on the Mississippi and the Ohio, control of the movement of the larger part of the coal traffic, and this is by far their important traffic. Everywhere in the United States the railways have practical charge of the water frontage.

(*b*) *Passenger Service and Rates*

Density of population, industrial activity, and per capita wealth are the fundamental forces in the passenger traffic. The volume of this traffic varies, of course, with the various sections. On the chief line between Boston and New York—the New York, New Haven, and Hartford,—the earnings from the passenger service amount to practically forty-eight per cent. of the total income, while for the whole country the average for the steam railways is approximately twenty-four per cent. from passenger earnings and sixty-nine per cent. from freight. The relative importance of the passenger service, as measured by its earnings, has, moreover, changed only slightly during the last thirty years. It was 23.5% in 1880, 24.79% in 1890, 21.77% in 1900, and 23.68% in 1908.

The growth of this traffic has, however, been significant, as may be seen in the figures of the per capita passenger mileage. This was 114 in 1880, 191 in 1890, 210 in 1900, and 260 in 1903; and from 1902 to 1908 the increase of the passenger mileage was forty-seven per cent., while that of the railway mileage was but 14.5%. A part of this increase in the passenger mileage was due to an increase in the average length of the journey. This was 21.29 miles in 1880, 24.06 in 1890, 27.8 in 1900, and 32.86 in 1908. From 1867 to 1900 it did not reach the figure of 1867–71, 28.63 miles. The increase in the length of the journey has been comparatively small; that of the per capita passenger mileage was during the twenty-three years, 1880–1903, as much as 228%, while the population had an increase of sixty per cent.

These figures indicate an important growth in the passenger service, but it is still slight as compared with that of some of the European countries. If we take the year 1900 as a fair one for comparison, we find that the United Kingdom had 27 per capita trips, Germany, 12, France, 10, the United States, 6.9, and Italy, 1.5. The United States stood low, sixth, in fact, in the per capita trips, but its passenger mileage in a year was second alone to that of the United Kingdom, which was in 1900 about 245 as compared with 220 in the United States, 175 in Germany, and 165 in France.

The European passenger service has generally three classes; Prussia has four regular classes and one special for soldiers and working-men. The United States has usually only one class. The Pullman car service is an extra in Europe, as well as in the United States. There

are some sections of the country in which a second regular class exists; in some parts of the West and South such a service is offered, at a rate considerably lower than that of the first class. By far the larger part of the traffic in the United States moves on the regular first-class service; in Europe on the third, or on the third and fourth. The American railways, unlike the European, have made little serious effort to create a general regular service below the first. The people who travel have for the most part looked with disfavour upon such a service. They have felt themselves as the equal of any whenever they have travelled by rail. The railways and the public have, therefore, alike worked for the creation of a superior service. They have, especially within more recent years, made their efforts toward a still higher service than the regular first class. During the decade ending with 1909 the Pullman service had a growth of approximately 210%, while the increase in the total number of passengers was only 70%.

The railways of the United States have, therefore, had a development of the passenger service in a direction directly opposite to that of Europe. In Europe, the tendency has been, as we have seen, more and more towards a cheaper service. The average European knows that he belongs to an inferior social class. He travels at the least possible expense. The average American demands in his railway service speed, comfort, and luxury, and when he travels by rail he does not like to feel himself a social inferior. The fact of the longer average journey—and it increased 23% during 1900–10—on the lines of the United States has its weight. It is more than twice

as long as that in Germany, almost twice that in France.

The American railways have estimated that, for the benefit of their maximum net profits, it is best, under the condition of comparatively slight density of passenger traffic, to offer an excellent service at a fairly high rate. They have, however, upon the whole not charged all the traffic would bear; they have usually supplied the grade of service which the public has demanded, and at a price that it would readily pay. The whole question has been to them one of business—of merely selling a service. In those countries of Europe where state operation has dominated, other than purely business reasons have played an important part in the supply of passenger service, and in the fixing of its rates. The idea of the administration's popularity in the mind of the masses has been an important one.

That the rates per passenger per mile should not in the United States have had important decreases, was to be expected. The service has steadily grown more efficient, comfortable, and luxurious, and the rates have not to a great degree changed, as may be seen in these figures of representative years:

1867	1.99 cents
1872	2.52 "
1877	2.45 "
1880	2.51 "
1882	2.39 "
1888	2.34 "
1890	2.16 "
1895	2.04 "

1900 . . . . . 2.00 cents
1905 . . . . . 1.96 "
1908 . . . . . 1.93 "

The rates of 1867 were abnormally low. They were less than in 1896–97, and less than at any date between 1867 and 1897 with the single exception of 1894. It has been only since 1901 that the average has become less than that of 1867. The decline, if we take 1872 as our basis of comparison, has been fairly important.

During the period since 1867, the European rates have had very important reductions, but they have come largely because of a great increase in the use of the second-, third-, and fourth-class service; their first- and second-class rates have remained high, their first considerably higher than those in the United States. The electric railways have, moreover, in the United States tended more and more to do the short distance and cheap passenger service, the larger part of which is done in Europe by the steam railways.

To make the comparison of American and European passenger rates more exact, let us present the figures of 1908 of the average receipts per passenger per mile:

United States,	(with 1	reg. class),	1.937 cents		
Great Britain,	" 3	" "	2	"	(approximately)
France,	" 3	" "	1.107	"	
Italy,	" 3	" "	1.3	"	"
Germany (1907),	" 3–5	" "	.929	"	

This comparison becomes all the more fair when it is considered in terms of the volume of traffic per class of service; and we here give the classification and percentages for the three leading countries of Europe, for years which are representatives:

	I	II	III	IV	Mil.
Prussian-Hessian State (1908)	0.17%	9.4 %	43.15%	46.20%	1.08%
France (1905)	4.41 "	24.69 "	70.90 "		
United Kingdom (1905)	3.04 "	4.38 "	92.58 "		

The passenger service in the United States, while it is in a number of places of comparatively slight traffic not particularly efficient, is upon the whole excellent. In terms of speed, comfort, and luxury, it has, we think, no superior, if indeed a single rival. In its equipment and in its station facilities, it is in many respects admirable. It is in its fatalities, that it makes its least favourable showing of excellency.

For References, see Chapter XVI.

CHAPTER XV

RAILWAY TRANSPORTATION IN THE UNITED STATES (*Continued*)

THE traffic of commodities has always been of far greater importance to the railways and to the public than that of passengers. The chief problem of the railways of the United States has, therefore, been in the movement of the freight. Since 1890 the percentage of earnings from the freight service as compared with the total income has been approximately from 67 to 71. It was 67.9% in 1890, 67.88% in 1895, 70.56% in 1900, 69.67% in 1905, and 69.15% in 1908. Prior to 1890 its relative value was upon an average as great as since that date.

(*a*) *Freight Service and Rates*

The expansion of the freight traffic has been remarkably great, as may be seen in the figures of the per capita ton mileage. This was 645 in 1880, 1217 in 1890, 2155 in 1903—an increase in twenty-three years of 334% in the demand for freight service, while during this period the population grew 60%.

The volume of this traffic is relatively large. The railways of the United States haul upon the whole a tonnage practically two times that of the British, fully twice that of the German, and from five to six times

that of the French. The total volume of traffic is large, but its density is as an average not equal to that of the United Kingdom or Germany. The length of the haul is also great. The typical haul per ton upon all the railways as a system was 242.7 miles in 1900, 237.56 in 1905, and 254 in 1910. By way of comparison, it is approximately 76 in France, 61–72 in Germany, and 31–50 in Great Britain. The railways of the United States had in 1907 a ton mileage approximately six times that of the British, nine times that of the German, and twenty times that of the French; they had a total tonnage of 1,641,410,776, with a ton mileage of 236,600,000,000.

The American tonnage has, unlike much of the European, moved in ever-increasingly large trains. This may best be seen in the average tonnage per train. This was 128.87 in 1880, 175.1 in 1890, 270.8 in 1900, and 351.8 in 1908. In 1910 nearly two-thirds of the freight cars of the United States had a capacity of from 60,000 to 80,000 pounds, and as many as 12 % of 100,000. Less than 4% had only 40,000. In no other land has it been necessary to haul heavy raw materials so long a distance as in the United States. The centres of the production of these materials have been and are still far distanced from the places of their manufacture—a point of enormously great vitality. The railways have, however, adjusted themselves to the situation with remarkable success. They have caused the places of raw materials, of manufacture, and of consumption, to be brought into unity. The greatness of their tasks, we have not appreciated at its full value. It would have, we think, been impossible to perform them so well by a rigidly

standardised system of transportation—the system which has dominated in state operation; it must be done by an administration possessing the power to be elastic and adjustable.

In the character of the freight traffic, the railways of the United States have had a problem different from that of many of the European lines. The American products have been much more largely of the lower value type than the British, German, or French; and too in Germany and France very considerable portions of the heavy low grade traffic have moved by water. The clearest view of the character of the traffic of the railways of the United States may be had in the grouping which the Interstate Commerce Commission has made, and in the percentage of each group as compared with the total tonnage, at three representative dates:

	1890	1900	1909
Agri. Products	13.51%	12.73%	8.92%
Animal "	4.13%	3.38%	2.49%
Mines "	42.40%	49.88%	55.60%
Forest "	9.96%	10.41%	11.75%
Manufactures	12.48%	14.10%	13.15%
Merchandise	4.65%	4.44%	4.11%
Miscellaneous	12.87%	5.06%	3.98%

It will be noticed, that for practically two decades the percentages have not materially changed, with the exception of the miscellaneous group. From this grouping it becomes clear that those sections which produce the minerals and the manufactures have almost 69% of the traffic, and that in the great belts of agriculture, particularly in the South and West, the

traffic is not at all dense. The area in which exists 68.75% of the traffic is largely confined to the territory north of the Potomac and the Ohio and east of the Illinois and Lake Michigan—a section with only one-ninth of the total area and more than two-thirds of the total tonnage.

These groups contain, of course, a large number of commodities, which are published in two separate books: (1) a *Classification Book*, (2) a *Tariff Book*. The *Classification Book* does not, however, cover all the items of traffic; many of them are assigned "commodity rates." During the year which came to a close on November 30, 1910, there were filed, at Washington, with the Interstate Commerce Commission 154,588 tariff publications—about 30,000 less than during the previous year. The decrease in the number of items was due to a consistent plan, which the railways had for some years followed, to include in the "book tariffs" rates upon as many specific commodities as possible and thus to eliminate as many of the miscellaneous tariffs as practicable.

The process of making the maximum number of "book tariffs" has been steadily at work; the tendency toward greater uniformity has been constantly strong since the early eighties. Prior to that time, the classification was not definite, though it was very slowly becoming so. The process of the consolidation of many small lines into greater and greater ones had a profound influence toward uniformity of classification. The demand for through shipment meant an increase in the number of interline rates. The greatest force toward uniformity has, however, been in the power of the Interstate Commerce Commission. There came

almost at once after its creation, in 1887, a more definite and uniform classification in the Trunk Line territory—a classification known as the "Official." By 1889 the "Southern" and the "Western" were definitely formed. The work of making these was, of course, a large one, and it was done by the representatives of the railways. There were 540 lines that took part in the formation of the "Official," 480 in the "Western," and 170 in the "Southern."

These three classifications do not include the purely local traffic, and they do not cover all of the United States. They apply, however, to the larger part of the traffic. The process has now almost achieved a system of uniformity for the whole country. A central committee has for more than three years been labouring to make it more complete. The revisions of the Interstate Commerce Act of 1906 and 1910 will add to the movement, since they require through routes and rates. The task has of necessity been so large and complicated, that it could not be performed in a short time or by a mechanical or routine method. The three important classifications, though they do not include all the traffic or territory, contain practically 22,000 entries. They must, moreover, have frequent modifications; American economic conditions have been and are highly dynamic. The "Official" and the "Southern" have had nearly forty editions, and the "Western," practically twenty-five.

In these classifications, the commodities of most value have been put in the highest groups. Value has, however, not been the sole factor in the American classification, though it has, according to a ruling of the Interstate Commerce Commission, been the con-

trolling one. Cost of service has frequently played an important rôle; and the commission has accepted this principle as correct when supplementary to the value of the service or of the goods. The element of risk has also, of course, been considered in the making of classifications and consequently of rates.

The three great classifications differ, of necessity, to an important degree in their rates for certain commodities and in the number of their items. They apply to sections whose industrial and traffic conditions are materially unlike. The "Official" has 6 numbered classes and 2 rules, with 10,087 items; the "Southern," 6 numbered and 7 lettered classes, with 4273 items; the "Western," 5 numbered and 5 lettered classes, with 7419 items. There is, as we have said, a large volume of traffic which does not move at the class rates, but at "commodity rates"—perhaps as much as 72%–75% of the total tonnage of the United States. This traffic is, as a rule, hauled in large quantities, and it is usually of heavy and bulky goods, as, for instance, coal, live stock, oil, lumber, etc. The "commodity rates" are generally lower than the "class rates." The percentages of the "commodity" traffic as compared with the total differ, of course, in the three great classification territories; it is nearly 80% in that of the "Official," 70%, of the "Western," and 65%, of the "Southern." In this respect, the railways of the United States have acted similarly to those in Europe.

As the classifications become more definite, rate-making becomes much easier, though it is by no means yet a simple task. For the items of the classification, it is difficult; for the goods moved at "commodity rates,"

it is more difficult. In the making of rates for either group—the "class" or the "commodity"—, a number of important elements must be considered, as, for instance: (1) the competition, (2) the value of the goods, (3) the volume of the tonnage, (4) the bulk and weight, (5) the risk, (6) whether the haul is one or both ways, (7) the facilities of the line and the general traffic conditions. The last five of these factors might be put under the general head of cost of service.

Competition has been an important factor in rate making in the United States, though in more recent years the competition between the railways and between the railways and the waterways has constantly diminished in its extent and intensity. There is, however, still considerable competition at the important centres. The competition of sections with sections upon a common market still plays a large rôle, and over this the railways have not, and cannot, become the masters. Practically no important area of the United States is without the choice of a number of market centres, around which the minor markets all rotate. These centres, as, for instance, Chicago, are still abundantly supplied with competitive transportation.

The value of the commodities, and consequently of the service of transporting them, has been, and should have been, a very large factor in rate making; from the very nature of transportation, it is clear that the value of the goods and services should always be recognised. This can generally be ascertained with a considerable degree of accuracy, and it is a fair basis of rates, provided all classes of commodities pay that charge which represents the real value that their

transportation has contributed to them. This principle of rate making has usually assumed the form of what the traffic can bear. The traffic manager can ascertain from the various agents of his line how large a rate will secure a certain volume of profitable traffic; and he in the main offers a rate slightly less than the one which the present traffic can possibly bear, since an increase in it is usually desired.

The cost of the service has also been a factor in American rate making. The railway, as any other business, must in making its prices consider this factor. It is, however, with the railway a difficult thing to ascertain with exactness, and, since practically 30% of its total expenses is due to the interest on the fixed indebtedness and to taxes, expenses which must be borne irrespective of the volume of traffic and earnings, the cost of service principle of price making cannot be so rigidly enforced. The cost of railway service, perhaps to a greater degree than that of any other commodity, is a joint one. It must be distributed to a number of different items, some of which, as, for instance, taxes and interest on the bonds, do not vary with the tonnage.

Rates prior to 1850 were almost entirely a problem for the small line, and in their making competition played a very slight part. With the creation of the larger lines and systems, came more wide-spread and active competition, though it remained under fair control until 1868. Now for a time it reigned alone, and in its worst form—in rate wars. After a few years of exhaustion and ruin, rate making by competition was largely abandoned in favour of rate making by pools, traffic associations, or "community of interest";

and to this day co-operation in some form, rather than competition, has been the prevailing force. The whole question of rate making will become more clear and concrete, if we trace its working in the chief groups of traffic.

In many respects it has had its most difficult task in the Trunk Line territory. Here the traffic has been the most dense and at the same time the most diversified; and here competition, industrial and transportational, has been the keenest. It is in this territory, that the best thought has been directed to a solution of the problems of operation and traffic. The Joint Executive Committee entered upon its enormously difficult tasks as early as 1879, and a far step was taken toward a uniform classification and schedule of rates. It was here that the first great system of classes and rates was formulated—the "Official." Here it was that the application of a practical distance basis of rates was first and most completely made; and here almost alone in the United States has this principle been in force. The east- and west-bound traffic of this territory has long been moved on the basis of the rate of the shortest route between New York and Chicago; and all the through-rates have, with some comparatively slight exceptions, been percentages of this basal rate. New York, rather than Chicago, has been the dominant force, since the majority of the traffic has been eastward bound. This centre has received commodities from all points equidistant from it at equal rates, and has, of course, shipped to them at equal rates. Such a system has practically placed a penalty upon the roundabout haul. This system of classes and rates has now for practically thirty-four years remained approximately steady; and

the industries and markets located within the territory of the "Official" classification have long known with practical accuracy the part which transportation cost will play for them.

Rate making in the Southern States has also been most difficult, and its work has not achieved so much towards uniformity as has been the case in the Trunk Line territory. In this region there has until within recent years been much rivalry between the railways and between the railways and the water-carriers. Water competition has here been a most influential factor. The steamers on the Atlantic and on the Ohio and Mississippi have exercised a profound influence upon the railways operating within the area of the "Southern" classification. The chief movement of the traffic of the seaboard section has followed the general course of the ocean; its trunk lines eastward and westward have been secondary to those running northward and southward. In the valley section, the Ohio River cities have exercised the controlling influence. They have made strenuous efforts to become the gates through which the Southern traffic should come and go. This traffic has been far less dense and diversified than that in the Trunk Line region. The average train load has been smaller and the length of the haul shorter than in the Trunk Line, the Western, or the Transcontinental territory. The local traffic of the railways has been so small, that the rates for its movement have necessarily been high; and they would have been still higher but for the competitive traffic which the railways have secured, oftentimes by offering lower rates to it than to the intermediate non-competitive.

Rate making in the Southern territory has also been peculiar in the fact of the wide prevalence of the "basing-point" system. Its water competition and its "basing-point" system have, in fact, been the characteristic features of this region. Before the days of the railway, the dominating forces in the control of interior commerce were crystallised in certain cities, which were situated upon the ocean or more especially upon one of the comparatively numerous rivers. The first railways were built to connect these centres with the ocean and with each other. At this time, and for many years afterward, there was keen competition between the railways and the waterways for the transportation of the products that were collected in these centres, particularly the interior ones. The control of the state, for many years, either did not exist or was wholly ineffective; and it was very natural that there should be many discriminations in rates—low ones for the competitive traffic and high ones for the non-competitive. Such was the origin of the "basing-point" system, which has exercised great influence over Southern rates to this day. The places where competition existed were in the early days made the "basing-points," and so they have continued.

The rates for the haul between two such points have been less per ton per mile, if not less in the total amount, than for the haul between one "basing-point" and an intermediate point upon the same line, or between two intermediate places. The chief defence of such discriminations in rates is in the fact that the intermediate haul would be more expensive than it is but for the volume of competitive traffic moved over the same line at a smaller rate. Until very recently,

the purely local non-competitive traffic has been entirely too slight to make it possible for the railway to offer low rates for its transportation; and the net earnings from the volume of the competitive traffic hauled, though very little, have enabled the railway to an extent to offer a lower rate on the non-competitive. Agriculture, especially the cultivation of cotton, has until within the last fifteen years been the absorbing enterprise of the Southern States, and it is still the dominant industry. This fact, together with the further one that the great majority of the cotton output has been transported to points outside of the Southern territory, to New England, or Europe, has perhaps been the chief reason why the "basing-point" system has continued to control rate making for so long a period.

It should also be noted that such a system of rates has brought into existence and caused to prosper in the Southern region many distributing or jobbing centres. These centres have decentralised the trade of the South; they have taken it from New York and Chicago. Such a system is most certainly not one of absolute justice and fairness to many places. From this point of view, it cannot stand comparison with the distance principle of rate making. It has, however, in the South one strong point in its defence—that of practical expediency. It could not be defended in the Trunk Line territory. The conditions of its traffic have long been such, that the practical distance rate could apply with relative expediency and fairness. The time is, moreover, rapidly coming in the South when the "basing-point" rate will no longer be seriously needed, and when the distance principle can more and more

be applied. The economic life is rapidly changing, and the traffic is becoming larger and more diversified. And, too, the definite power, which was in 1910, in the revision of the Interstate Commerce Act, given to the commission over the long and short haul, will cause a gradual abandonment of the "basing-point" principle of rate making in favour of the distance one.

Rate making in the territory west of the Mississippi River and Lake Michigan and south of the Wisconsin–Illinois border has also been powerfully influenced by certain centres, particularly Chicago and St. Louis, situated at points where railways and water compete. The railways of this vast territory have operated under conditions in many respects similar to those in the Southern States. Their traffic has not been dense or diversified, and there has been considerable competition between the railways and between the railways and the waterways. They have established a system of differentials upon the basis of the rates from New York to Chicago and St. Louis. This system was created in the early days of the rivalry between these two vigorous and powerful centres for the trade of the Mississippi Valley and the Central West—a vast region with a profitable but slight traffic. The railways offered percentage rates on the basis of those between New York and Chicago, in order to secure the traffic that moved between this region and the far East. St. Louis for a time had 129% of the base rates, then 116%, and still later 114%. On the traffic which moved westward from the two centres, St. Louis and Chicago, to the Missouri River cities, the railways fixed such rates as would enable products moving from or through either of these centres to be marketed in

the Missouri River towns at substantially equal prices. They established higher rates from Chicago to these towns than from St. Louis, in order to offset the greater charge to St. Louis and other Mississippi River towns than to Chicago on commodities hauled from the East. The through rates from the East to the Missouri River towns were made the same, whether the haul was via Chicago or St. Louis; they were made up of three local ones: (1) from the East to the Mississippi, (2) from the Mississippi to the Missouri River, (3) from the Missouri River westward.

Such a system of rates made it possible for the Missouri River cities, Chicago, and St. Louis, to compete as market centres for the commodities, largely raw materials, of a vast territory to the west and south of them. It also enabled them to become the distributing centres of the finished goods needed by this territory. Such a system gave to the manufacturer of the East a much wider market for his finished products, and to the great West, a more profitable one for its cruder commodities. Under the conditions of traffic that have prevailed in this territory, it has been inexpedient for its railways to establish a complete distance basis of rate making. The time has, however, practically arrived when the distance principle may be here quite largely applied.

Rate making on the transcontinental lines has been in many particulars like that in the territory of the "Southern" classification. Their traffic has been highly competitive. It could move westward by steamer to Colon, across the Isthmus by rail, and again by steamer; and *vice versa* for the eastward traffic. It could go all the way to and from Japan

and China via the Suez Canal. To meet this water competition, the transcontinental railways have established "blanket" rates, for both class and commodity shipments, on the westward haul from practically all the important points east of the Missouri River. Their "blanket" rates have covered almost one-half of the entire United States. These lines have also established a system of "zone" rates, more especially for their east-bound traffic. Their low commodity rates for hauls from one ocean to the other have applied to a large number of articles—perhaps more than a thousand. The charges to intermediate points have usually been larger than the through ones.

The blanket and zone system of the transcontinental lines rests still less upon the basis of distance than the basing-point system of the South. A distance rate for their traffic would, moreover, have been a disadvantage to the shipper as well as the carrier. The traffic has until very recently been slight and the distance of its haul has been enormous—as much as 3000 miles. It has been largely due to their blanket and zone system, that the West and far West have had such a rapid development, and that the traffic of the transcontinental lines has had great increases in its volume and earnings. Such a system has also rendered service to the manufacturer of the East and the consumer of the far West. It has meant an enormously wide market for both of them. The conditions of the local traffic of these lines are, however, fast changing. A few more years of growth will put it in the position of the master. This fact, together with that of the increased power of the Interstate Commerce Commission over the long and short haul,

means the comparatively rapid abandonment of the blanket system of rate making in favour of a practical distance one.

The railways of the United States as a whole have not followed the distance principle of rate making. They have in many sections almost completely neglected distance as a factor in rates, particularly in "commodity" rates. In 1906 perhaps as much as three-fourths of the tonnage of the United States was carried at rates, in the making of which distance was not an important element. The non-distance rate has, as we have said, performed many excellent services for the people of the United States; their conditions of business and traffic have in many places been such that the rigid distance rate would have been an obstacle to their development, however excellent from the point of view of absolute or abstract justice. Practical and sane expediency has been its chief defence, but this has become weaker as economic and traffic conditions have changed. In the future, the people of the United States must have more of the distance factor in rate making than they have had, though the change should come slowly, and though their system should never become rigid. Abuses may always exist in the non-distance rate, and they may at times become grievous. If the railways ignore distance too much, they stimulate the tendency to excessive concentration of population and industries in the large centres, and place too heavy burdens upon their local non-competitive traffic in favour of the long-distance competitive traffic.

What have been the average rates upon the railways of the United States as a whole? This question may

best be answered by the figures of receipts per ton per mile of certain representative years:

1867	1.92 cents
1870	1.89 "
1880	1.28 "
1885	1.00 "
1890	.927 "
1895	.839 "
1900	.729 "
1905	.748 "
1908	.754 "

It will be seen that the freight rates declined during the period 1867–1900 much more than the passenger. The decline in the through rates was considerably more than in the local. The figures which we have presented are, however, only approximately accurate indices of the decrease in rates. The character of the traffic had also during this period a change, toward an increased volume of low-grade commodities. An increase in the volume of such traffic meant a decrease in the average receipts per ton per mile, though the rates remained the same—or even increased. The difference in the nature of the traffic could, however, explain only a part of the decrease in the ton mile receipts. The rates also declined. They were in 1900 probably less than 50% of what they were in 1870, perhaps only 40%. The facilities of the railways and the volume of the total traffic had important increases; and the competition of one kind or another was more or less effective. The increase in the ton mile receipts since 1900 has been due to the policy of the railways to abolish some of their commodity shipments—to

put them under the regular classification, the rates of which are higher than those for the "commodity" shipment. The "class" rates have also in a few instances been increased, largely through a change in the classification of the goods. These increases since 1900 have, however, not kept the pace of the rise in the prices of other commodities and services.

The decline in freight rates was for the period 1870–1900 much greater in the United States than in Europe. The American roads and their equipment had during these years a far larger growth than the European. The nature of the American traffic also changed more rapidly toward the lower value commodities. While the European lines were hauling much manufactures, the American were moving much raw materials. The majority of the American traffic moved in car-load lots, usually of 60,000 pounds or more; much of the European was shipped by the piece or in five- or ten-ton lots. The American haul was very long, while the European, especially the Western European, was very short. The American railways did not collect or deliver the traffic; the British did both.

A comparison that is in all particulars fair cannot, therefore, be made. The figures in the table which follows must consequently be modified. The differences in the conditions of traffic are, however, not very great. They cannot possibly explain away all the differences in the ton mile receipts. After all allowance has been made, the fact still remains that the freight rates of the United States have been lower than those in Europe, and that the efficiency of the American freight service has upon the whole been greater.

The rates for small shipments and short hauls are practically the same; those for long hauls and large lots are decidedly less in the United States. The table is presented, not as an absolute, but as a relative, exhibit of the ton mile rates for haulage of the five countries which we have taken into our study:

	United States	France	Germany	Italy	United Kingdom
1870	1.89 cents	1.78 c.		(1872) 1.95 c.	(Include collection and delivery)
1880	1.28 "	1.68 "		1.97 "	
1890	.927 "	1.54 "	1.35 c.	1.64 "	
1900	.729 "	1.32 "	1.27 "	(1899) 1.57 "	about 2.00 c.
1905	.748 "	1.27 "	1.21 "		" 2.00 "
1908	.754 "	1.21 "	(1907) 1.26 "	1.56 " (about)	" 2.00 "

(*b*) *Theory of Rates*

There have been two great principles, in theory at least, of rate making: (1) the cost of service, (2) the value of service. The American railway has, as we have seen, placed much the larger emphasis upon the second principle—that of the value of the service or what the traffic will bear. It has, however, relied in a general way upon the first principle. The cost principle, which dictates a practical mileage rate, has been too inelastic for the majority of the traffic of the United States. The value of service principle has, on the other hand, given the manager great freedom to act upon his discretion. The first has meant uniformity and few discriminations; the second, elasticity, adjustment to peculiar traffic conditions, complication, many discriminations.

The cost principle would make it impossible to haul

crude rock or sand a long distance; it would enable a car of high grade furniture or automobiles to move at a rate less than they could easily afford to pay for transportation. It is necessary that both should move, and it is fair that their rates should be in proportion to their ability to pay for haulage, as well as include to an extent the element of cost to their carrier. Such a differentiation is in perfect accord with the soundest principles of valuation that prevail throughout life. The railway manager may, and too oftentimes does, abuse his discretion in the making of these differentials in values. He may, and does at times, forget the best interests of the public, or he may even ignore them, when he is allowed to follow too freely the value of service principle of rate making.

The cost of service principle has in practice one serious defect—that it is most difficult to ascertain the specific cost for a certain particular service. The costs of railway service are fundamentally joint; the outlay for each item of traffic is in a large measure common to the whole traffic, certainly to a great part of it. It is, moreover, not fair to the shipper or the carrier when rigidly enforced. Commodities of small bulk and weight that possess large value would, according to such a principle, pay only slight rates. The majority of low value commodities would be forced to pay high rates, since, because of their large weight and bulk, their cost of transportation is great.

The ideal is, we believe, to combine these two principles of rate making. At least each should always be applied in connection with the other. A value of service rate may be too discriminatory and, therefore, unjust. A cost of service rate may obstruct the

growth of business and traffic, and work harm to consumer as well as producer, since it may prevent or restrict their wholesome and valuable relationships. In the United States and Great Britain, the value of service principle has at times largely displaced the cost of service principle, and rates have been too discriminatory. In Germany and France, where for many years there could be no variation from a distance rate unless by official permission or legislative enactment, economic life has been restricted by a too rigid application of the cost principle. To relieve the people from such restrictions, there has come, to an extent, the system of the tapering rate by *barêmes* or *Staffeltarifen*. The results have been altogether wholesome, and the relief should be extended to a far greater extent. The French and the German systems of rate making are still substantially rigid; the distance rate is still, we think, too largely applied, and the taper of the rate is still too slight. Their chief task is to make their rates more adjustable to actual conditions—more flexible to practical expediency. Their *barêmes* are too much the product of abstract philosophy, too little of real economic judgment. The chief task of the United States is, on the other hand, to eliminate more of the abuses of discriminatory rates—to apply more of the principle of distance or cost, more of universal justice, less of sharp trading. The American problem is fundamentally one of the reasonableness of rates, of what discriminations are just and what unjust.

For References, see Chapter XVI.

CHAPTER XVI

RAILWAY TRANSPORTATION IN THE UNITED STATES (*Concluded*)

THE ideal of state operation is to centre all of its force in the efficiency of management. When the railways are managed by private enterprise, the vital problem of the state is one of regulation. This crystallises itself in the control of the service and rates —primarily in the reasonableness of rates. In the United Kingdom, France, and Italy, there is but one body that regulates or operates the railways—that of the central administration. The control is, therefore, unified and centralised. In Germany and in the United States, on the other hand, the political power is divided; the states, as well as the nation, may operate the lines or regulate their operation. In the United States, it was the state which granted the charter privileges; and this body played the important rôle, in fact the exclusive one, in all the earlier attempts at control.

The Ideals and Machinery of State Control

(*1*) *Control by the States*

The State's control has been exercised through the granting of charters, through general legislation, and

through the railway commission which the Legislature has established.

The first charters granted in the United States were copies, mechanically made, of the British. They were very general as to the power, rights, and privileges of the companies to which they granted. In the matter of rates, they were more definite; practically all of them contained some provision of maximum rates, though these maxima were for the most part considerably higher than the company desired, for business reasons, to charge. The charters were for a time granted by special acts of the Legislature. They were merely private bills, and they consequently differed very much from each other. Almost unlimited powers were by these granted to the railway companies, and no special machinery was provided for the enforcement of the few restrictions that were placed upon the companies. This was left to the regular judicial officers, who had already sufficient tasks to perform. There were, to be sure, a few instances of special machinery for the enforcement of the charter provisions. In the first charters practically no reservations of general powers to the Legislature were made. A charter granted, in 1829, in Massachusetts, was notable in the fact that it reserved to the Legislature the right to revise rates whenever the net earnings were in excess of 10%—a right which never gave real power of control.

There was complete lack of uniformity in practically all the early charters; each special act was peculiar. To relieve such a chaotic condition, the work of forming a general law on railway charters was taken up by a few States at a fairly early date. In 1833 such a law

was passed by the Legislature of Massachusetts, though it did not become very definite or comprehensive until in 1855. Other States slowly enacted such general statutes. The general laws had, however, slight influence towards uniformity, since the legislatures, even after 1855, continued to issue a number of charters by special acts. The charters, whether according to a general law or by special act, continued, moreover, wholly ineffective in their control of railway transportation. There was practically no special machinery of supervision; the judicial officers, to whom was assigned this duty, were busily employed, and they were slavish believers in the dictum that competition does all things well.

Most of the States came, sooner or later, to have constitutional provisions in reference to railway charters, to prevent their issue except in accordance with the general law. In a number of these constitutional provisions, the Legislature was empowered to amend or annul the charters which had been issued by special act, in case the public interest clearly demanded it. Many of these provisions were, however, left unenforced. The charters which had been granted by special act were not changed or declared void, and the new ones were none too carefully scrutinised. The railways really continued unregulated by the States.

The charter, whether by special act or in accordance with a general law or constitutional provision, failed to regulate the operation and the traffic. The failure was, moreover, due to the inadequacy of the charters, since practically unlimited rights and privileges had been granted to the companies, or to the

neglect of the Legislature to provide special machinery of supervision. Competition had, in spite of the widespread popular notion of its powerful efficacy, not prevented abuses. It had, on the contrary, created many of them. There came a demand for a change, for some new method of state control; and much legislation upon the various phases of railway transportation, especially those of rates, was soon after 1870 enacted. Rates must be regulated, in spite of the charter maxima. The Legislature must prescribe new maxima, in the place of the old charter ones, which could never be effective, since they were much higher than the carrier wished to charge, or it must create special machinery to control the rates fixed by the railways.

Such legislative activity was during the period 1870–77 especially vigorous in the Central Western States, where the abuses of discriminatory rates had become, under the stress of violent rate wars, acute. All of the new laws assumed that railway transportation is quasi-public, even though its operation is entirely carried on by private enterprise. Prior to this period the railways had really had the right to think of themselves as private; the government had year after year given them permission to entertain such a notion. Since the railway was assumed to be a public carrier, the State Legislature had the right to regulate its operation and rates, in spite of the charter.

The railways opposed, of course, such an assumption and the legislation that rested upon it. They made the contention, following the principle of the famous Dartmouth College decision of the Supreme Court of the United States, rendered in 1819, that a charter

from the state is a contract between the state and the company, and that the state has no power to break it. Their contention was entirely valid when applied to a strictly private business, but the Supreme Court of the United States ruled, in the Granger cases of 1876–77, that, whenever any business or property is clothed with a public interest, the Legislature may by law place limits to its charges. It was now for the first time made unmistakably clear, that, since a railway is a common carrier and enjoys from the state the special right of eminent domain in its roadway, it must operate under the restriction of supervision by the state as to the reasonableness of its charges, whatever may be its charter rights.

Such a far-reaching decision had, however, comparatively slight influence. A period of depression soon came, and much of this vigorous legislation was repealed or seriously revised. It was, in fact, not until 1890 that the States again took active steps toward efficient control of railway rates.

Control through specific legislation, as well as through the charters, could not become efficient until some special machinery had been provided for the supervision of the railways and for the enforcement of the legal provisions. This machinery has taken the form of a commission, and this, like the charters, constitutional provisions, and special laws, has differed widely. In some States, the commission has been purely advisory, in others, regulative. The first type, known as the "weak commission," has had its home in New England; the second or "strong" type has prevailed in the West and South. A number of the States have established no special machinery. In

1908 there were commissions of some type in only thirty-nine of the States.

Extreme legislation like that of 1870–77 was not again enacted until 1902. There was, as we have seen, little activity on the part of the States from 1883 to 1890. And the tendency of the control by the States for twelve years more was away from radicalism. During this period, commissions were created with some powers over rates, but maximum rate laws were not enacted. The control of the States did not, however, achieve such rapid or important changes as was desired on the part of the more radical forces, and during the five years 1902–07 extreme legislation was exceedingly active. It was during this time that fifteen new commissions were established, though of these seven were recreations.

Some of the commissions, as they exist at the present, have only corrective powers; they may revise the rates which the railways make. Others have the power to prescribe schedules of rates of their own initiative. As many as twelve of them in 1908 possessed only the power of investigation of rates and of recommendation of changes. The newly created ones, those of the period 1902–07, have large administrative powers over the railway service, especially over the rates. Thirteen of them were given the definite power to regulate rates, five by prescribing the schedules, eight by revising those made by the railways. More definite powers over rates, particularly their discriminations, have recently been given to the older commissions.

The creation of new commissions and the reformation of the old ones were not the only acts of the States

during this five-year period of notable activity and radicalism. In a number of cases the legislators were willing to leave the question of the state's control of rates solely in the hands of a commission. In other cases they were not; twenty States passed maximum rate laws, and nine, maximum rate schedules. The commissions were, of course, in these States made merely executive bodies without discretion as to the reasonableness or unreasonableness of rates.

These efforts on the part of the legislatures were in most cases without sanity of judgment. Their maximum laws and schedules were usually made without sufficient information or consideration, and they were without the power of adjustability to the actual conditions of the traffic. Fortunately, most of their maxima applied only to the passenger service. It is perhaps possible for the British Parliament, after the Board of Trade has spent practically two years in a most diligent and vigorous effort to formulate maxima for the freight service, to enact fairly wise statutory maxima. For an American legislature, state or national, to prescribe such maxima without long and serious effort to ascertain all the actual conditions and facts, is, we think, nothing short of the wildest folly.

A commission selected solely with the view of efficiency, and to which large powers of discretion have been given, may render, and has rendered, a service to the public of very great value. There have been, unfortunately, too few of such commissions in the American States. Though many of these commissions have not been properly manned, and though a number of them have not had sufficient freedom of

discretion, their work has upon the whole been valuable. They have performed the important educational service of causing the shipper and the carrier to see more clearly each other's views and rights.

(2) *Control by the Nation*

One reason for the inefficiency of control by the States has been in the fact that this control could not legally cover a large part of the operation and traffic of the railways. Perhaps as much as 70% of all the traffic in the United States is that which moves across the borders of States; and this traffic is solely for the nation to supervise. The "commerce clause" of the national constitution reserves the regulation of all interstate trade to the National Government. This clause is, however, not the only limitation which the national constitution places upon the States in their supervision of railway transportation. The fifth and the fourteenth amendments to the Constitution give to the federal courts the power and duty to protect any citizen—and a corporation is in law a citizen—from the confiscation of his property; the fifth provides against confiscation by Congress, while the fourteenth specifically protects the citizen against the State Legislature. The Federal Government has, therefore, abundant power to supervise and control all interstate traffic, and to protect intra-state transportation from confiscatory legislation.

No steps were, however, taken by the nation to regulate railway traffic until after 1870. There had, in fact, to this date been no demand for federal regulation, and little for that by the States. The roads had

not until 1868 become very powerful, or their abuses of power very great. It was not until the rate wars between the big systems brought with them abusive discriminations on a very large scale, that the call for state or federal regulation became clear and persistent. The first move made by the nation towards the exercise of its right of control of interstate traffic was made in 1874—in the appointment of a senate committee (the Windom) of investigation. This committee thought that the through rates on the traffic from the Central West to the East were too high, and that the Federal Government had the right to, and should, make reductions in them. The method of action suggested by it was that of water and rail competition. The suggestions of the committee came, however, to practically nothing. They were, in fact, unsound. Had the committee made a keener observation of the situation, it would have discovered that the chief abuse was not in the size of these rates, but in their discriminations, especially in the discriminations in favour of the long-distance competitive traffic over the non-competitive local traffic. The source of these abuses was in competition.

Though nothing could come of the committee's suggestions, and though the nation remained inactive, popular agitation for federal regulation continued. The condition had most certainly been bad, and the new laws of the States, though for a time very radical, made little improvement in it. Abusive discriminations could not be eliminated by the prescription of new statutory maxima. The task was not in the largeness of the rates as a whole, but in their variations. It should, however, be noted that the most effective force

for the elimination of such an unwholesome condition had already been applied—the pool or traffic association. The rate discriminations were really slight in 1884 as compared with those of ten years earlier. The memory of the old condition, however, continued fresh, and the popular feeling against combination was strong. The nation must take a more active, if not indeed an extreme, part.

All of this caused the appointment of another senate committee of investigation—the Cullom, of 1886. The findings of this committee were more accurate and its diagnosis of the trouble was keener. It was found that abusive discriminations had for a good many years been the chief factors in the unsatisfactory condition. Its report and recommendations, unlike those of the Windom committee, materialised—in the Interstate Commerce Act of 1887. This first act of the nation to regulate the railway traffic consciously copied a number of the provisions of the British Acts of 1854 and 1873. This law applied to all interstate transportation by rail alone, or by rail and water, and to an extent to the transportation between the United States and foreign countries. Just as the rate was the heart of railway transportation, from the point of view of both carrier and shipper, so it became the vital part of the new law. The chief reason for its existence was in the demand for a greater justice in the fixing of rates. They must be reasonable in themselves; they must be reasonable as compared with other rates.

This Act, which has been to this day the foundation upon which the people of the United States have slowly built an efficient machinery of federal control, crystallised in a large measure the principles of the

British and the American common law on transportation, long in vogue but rarely enforced. These principles, as applied to rates, were, however, not entirely applicable to the railways, even though they were well adapted to carriers like the toll-taking highway or canal. The common law approved all rates provided none of them were unreasonably high. The vital point in railway rates was not so much in the absolute reasonableness as in the relative—in the rate to one shipper as compared with that to another. The chief design of the new federal law was to prevent unreasonable and unjust discriminations to shippers in interstate commerce.

This law specified and defined the rights and powers of the National Government over railways. It also created the machinery for the enforcement of its provisions—the Interstate Commerce Commission, largely after the model of the British Railway and Canal Commission of 1873. The commission consisted of five members, who should devote all their time to the performance of its tasks, appointed by the President. Their term of service was fixed at six years except for the first members, who held as follows: one for two years, one for three, one for four, one for five, and one for six. That they might be as non-partisan as possible, it was provided that not more than three of them could be of one political party and that they should be removable only for inefficiency, neglect of duty, or malfeasance.

This Act created the machinery of federal control, but it did not clearly define its functions and power. Experience alone could do this. The British commission of 1873, after which it was modelled, had most

vague functions and powers, and its real failure was not well known, even in Great Britain, until far into the eighties. The American commission had something of each of the three governmental functions—the legislative, executive, and judicial—, but in all of its work it was subject to Congress and the federal courts. A revision in 1889 gave it the power to enforce the provisions of the act by summary process, to require publications of rates, and to institute investigations into any phase of interstate traffic.

The commission found at the outset that its chief duty—to ascertain and pass judgment upon points of reasonableness of rates—was a most complicated one. It was an immense practical question. The shipper and all the phases of his industries were involved in it. The railway and all of its prosperity were also vitally interested. The law, which it was to enforce, condemned only the unreasonable discriminations; it could not mean all discriminations in rates, even though some of the radicals had struggled for the inclusion of all. What were reasonable and just discriminations? What unreasonable? Only the man who was totally ignorant of the traffic conditions of the United States could fancy these simple questions.

It was at the beginning seen, though vaguely, that a different charge for a similar service might be justified by the fact of different traffic conditions. The vital point was in these actual conditions, whether their dissimilarity was sufficient to justify a different rate or not. The American Act followed the "equality clause" of the British Act of 1845, in condemning as illegal all difference in rate between shippers at work under the same traffic conditions. But in few cases

were the conditions exactly the same. It was very clear to the commission, that many discriminations should be allowed on the basis of the volume of the commodities and the cost and risk of their transportation.

Since the Act did not define the term "unreasonable," the commission must work with the actual facts and conditions of traffic without a clear guiding principle; and its power extended only to those cases of unreasonableness of which complaint was made to it. The reasonableness of the whole schedule of rates was, therefore, never brought to its attention, or to that of the federal courts on appeal from the findings of the commission. The reasonableness was, consequently, a relative, not an absolute, thing; it was a matter of preference to persons or places.

A notable example of preference was in the long and short haul. The federal law condemned a greater charge in the aggregate for traffic moved between two places along the same line, in the same direction, and at the same time, than for two points farther apart on the same line, unless the conditions of traffic were actually dissimilar. Had the phrase "substantially similar circumstances and conditions" not been inserted into the "long and short haul" clause, the Interstate Commerce Act would have completely eliminated the value of service principle of rate making. The insertion of this phrase, which came in 1887 as a compromise after a very hard fight, made it possible for rates to continue to adjust themselves to the actual conditions of traffic, and to stimulate greater development of the industries in many sections of the United States. It enabled the Supreme Court,

in over-ruling the commission, to authorise the continuance of the value of service principle.

The Act of 1887 gave power to the commission to grant, after investigation, exceptions to the "long and short haul" clause. Many applications for relief from its provisions were early made. The commission almost at the outset, though after some investigation, made the ruling that the burden of proof rested upon the railways to justify a departure from the regular rule of the clause—that they must prove the dissimilarity of conditions and circumstances. The commission held, moreover, that the competition between railways did not constitute sufficient dissimilarity, though that between a railway and a waterway did. This decision was soon modified, though only slightly. The commission now ruled that the fact of dissimilarity of conditions did not in itself sufficiently justify the greater charge for the shorter haul, that only its permission could.

This far-reaching decision of the commission was in 1897 declared void by the Supreme Court, in the Alabama Midland case. The court held, that the competition of railways and of trade centres was an important factor in the conditions of traffic, that the railways need not ask the commission for relief—that the prohibition against their departure from the general rule of the "long and short haul" clause did not really exist. In the mind of the court, any competition that was effective made a smaller charge for the longer haul reasonable. Such a decision of the court, though it was a severe criticism of the judgment of the commission, was, we think, highly fortunate. It enabled the railways operating in regions of

slight traffic to prosper and to add to the development and prosperity of their territory; and there were then, as we have seen, a number of such regions, notably in the South. A rigid enforcement of the "long and short haul" clause would at that date have been a serious handicap.

The federal law of 1887 contained a number of excellent provisions, though they were not stated with great definiteness. Its clauses, which created a commission, and which forbade discriminations in rates between persons located under the same conditions of traffic, meant a long step toward a wise and efficient federal control. When the Act forbade pooling, and thereby put a practical end to it, Congress, as the States had before done, deprived the railways of the only real instrument that they had to abolish discriminations in rates. The nation was with one hand making a serious effort to prevent discriminations; with the other hand it was creating conditions under which discriminations must flourish. Congress, when it enacted the anti-pool clause, made a step in the wrong direction—in fact a step in advance of the common law. The courts would not enforce the pooling contracts; Congress specifically declared them illegal, and thereby added to the difficulty of the task of the commission to prevent as far as possible unreasonable discriminations.

The commission had, as we have said, a tremendous task to perform. The British Railway and Canal Commission had done little to solve the problem of reasonable discriminations in rates, even for Great Britain; it had formulated no guiding principle that could aid commissions at work in other countries

where traffic conditions had many points of dissimilarity to the British. The state commissions in the United States had formulated no clear principle of decision, even for the local intra-state traffic. Had they done so, the principle would have been of little service as a guide to the Interstate Commerce Commission, the scope of whose jurisdiction extended throughout a vast and diversified territory. That the national commission should have for some years laboured in comparative darkness, was no particular fault of its own. When we consider its vague functions and powers as assigned to it by the Act of 1887, its enormously complicated and difficult tasks, and the lack of that knowledge which can alone come from actual experience, we have little disposition to criticise unfavourably the work of the Interstate Commerce Commission, or that of the courts when they have overruled its decisions. We shall judge it largely by its policies and principles of action, rather than its actual achievements. What have these been?

Almost at the beginning, the commission came to the conclusion that the cost of the service should not be its chief guide of the reasonableness of a complained-of charge. It believed that the specific cost of any single service could not be accurately ascertained, and that, were it ascertainable, it would not be a fair guide of the reasonableness of its rate. It decided to make this the supplementary principle of reasonableness. By this decision, the commission accepted the fact that railway rates are, and must be, things of practical expediency, as well as justice. The cost principle or the distance principle—and the second is a concrete form of the first—would have been a much easier and

more routine basis upon which to decide the reasonableness. It would, however, have been an obstacle to the development of railway traffic and of economic life in general. The conditions of American economic life were then such that a distance or cost rate could not have rigidly been enforced in many sections without serious detriment.

The commission, while it has never made cost its chief guide in its own investigations, and while it has never permitted the railways to place too much emphasis upon it in their defence of a certain rate, has always relied upon it to a considerable degree, particularly in some of its later rulings. The commission has been charged with inconsistency, since cost has been allowed by it to play a much more important rôle in determining reasonableness in some of the later cases. There is, however, no solid reason for the charge. Cost may be a fairer guide of reasonableness in some cases than in others; and the railway managers have keenly appreciated this fact in making their defence.

When the commission decided to make the value of the service, or the value of the goods, its chief principle of reasonableness, it did the wisest possible thing, though such a decision meant that its labours would be greatly increased. To determine the reasonableness of a rate upon the basis of the value of the haul, is an enormously difficult task. The value of the service depends fundamentally upon traffic and economic conditions, and these are, in the United States at least, wonderfully varied and complex.

With the principle of value as the chief guide, the commission must pass upon that most difficult question of the natural advantages of locations. It seems

a fair thing to allow each place the full benefit of its own advantages or values, whether natural, geographical, or transportational; and the commission has accepted this as in the main a correct principle. What these advantages are actually worth has, however, been a point most difficult to ascertain. The railways of the United States have often established rates that make comparatively equal the inequalities of advantages of competing centres—that is places whose advantages are great have been by the railway rate put in the condition of equality on a common market with those whose advantages are less. The commission in its decisions has not admitted the contention of the railways, that, because of the value of the service, they may follow at will the policy of levelling up or down the peculiar advantages of certain market centres. It has, on the other hand, acted upon the principle that no centre, however great its peculiar advantages, may have a complete monopoly over a certain market, and thereby make the consumer pay higher prices for goods than those which another place would charge for them had it fair railway rates.

Upon the basis of the value of service, the commission has been forced to consider all the intricacies of competition. This factor has been allowed by the commission, in many cases, to play an important rôle in determining the reasonableness of rates. It has ruled, that this factor may justify a lower rate on goods for export than on those for domestic use. It has also ruled—and its ruling has been sustained by the Supreme Court—, that competition between railways or between railways and waterways should be main-

tained, in order that monopoly of carriers or of producers may be prevented.

The American commission has then, as the British, formulated no fixed and dogmatic rules or principles of reasonableness. It may have at times been too uncertain and changeable in its principles, but no general charge of vacillation can hold against it. The questions which have been presented to it have involved such varied factors, that it must, if it acted wisely, act according to the real facts and conditions, and not after a dogmatically unalterable principle. It has, wisely, never applied a rule of automatic reasonableness; nor has it made effort to do the impossible—to make absolutely perfect adjustments of rates. It has, however, striven to the best of its ability to prevent as many maladjustments as possible. Its greatest achievements have been its investigation into and publication of the actual facts of railway operation, for the benefit of the public, and for use as *prima facie* evidence in all judicial proceedings, and its educational work of causing the carriers and the public to understand the better each other's views.

The power of the commission was, as we have said, restricted to certain complained-of rates. It could not formulate or apply a universal schedule of rates. Congress, wisely, enacted no statutory maxima, and it did not empower the commission to make them. The commission thought that it possessed the implied power of prescribing a certain rate, to take the place of the one declared unreasonable; and, upon such an interpretation of the law, it acted until it was overruled by the Supreme Court. This power was ques-

tioned by the court in 1896, in the Social Circle case. In 1897, in the Maximum Rate case, the court ruled, that the power to prescribe a single rate, or to fix one, did not belong to the commission—that under no conditions whatever had the commission the power to prescribe a maximum, a minimum, or any other rate for the future.

The commission had up to the first of 1906 considered 3791 informal complaints. It had effected a settlement without its own formal action in 2400 of them—an important work. It had prior to this date received practically 800 formal complaints, nearly one-half of which were later withdrawn. By this time it had rendered formal decisions, more or less favourable to the shipper, in approximately 200 cases, in most of which the commission made a suggestion as to the extent to which it thought the rate too high. In the case of about 50 of these the railways refused to accept the suggested rate. The courts had up to January 1, 1906, overruled the decisions of the commission in about 90% of the cases which it had taken before them for the enforcement of its order. The commission had, so the courts ruled, made a wrong interpretation of the law or of the facts involved.

The policy of the Supreme Court in allowing a judicial review of the commission's decisions did not until 1890 become definite or complete. A clear policy, which has exercised great influence upon both the carrier and the public, was now formulated. It was declared, that, since a railway is a citizen in the law, its property is entitled to all the protection which the fourteenth amendment to the Constitution guarantees to a citizen—that its property can not be taken with-

out due process of law.[1] Such a decision placed the ultimate determination of the reasonableness of rates in the power of the federal courts.

The Supreme Court has, however, found the question of reasonableness so difficult, that it has not yet clearly named the factors which constitute it. Must the earnings be large enough to pay a fair dividend to the share-holders, as well as the charges on the fixed indebtedness and on operation and maintenance? How large may the dividend be? Smyth *vs.* Ames, a notable decision, of 1898, laid down two bases for the consideration of reasonableness of rates: (1) the fair value of the railway property, (2) the right of the railway in terms of the right of the public. The contention that this decision of the court was too favourable to the carriers, is difficult to defend. The second basis is sufficient to cause all railway rate questions to be considered in vital relationship with public interest and welfare. The same decision also held, that a railway possessed the right to appeal to the federal courts, on the ground of equity, in unreasonably low rates, as well as to bring suit in these courts to prevent the enforcement of such rates, whether by the state or national officials.

The difficulties under which the commission laboured, and the fact that in a number of important cases, notably the Maximum Rate case of 1897, its decisions were completely reversed by the courts, gave cause for a popular demand for a revision of the Interstate Commerce Act. This demand became stronger with the years. The enactment of the Elkins Act in 1903, by far the most important amendment to the

[1] Chicago, Milwaukee & St. Paul Ry. Co. *vs.* Minnesota.

federal transportation law, since its passage, came in answer to this popular call. This amendment, like the clauses of the original act, was designed solely to eliminate abusive discriminations in rates. It required the carriers to operate according to their published schedules of rates. It declared any deviation from these a misdemeanour, on the part of the corporation, or its officer or agent. It placed a penalty for such deviation, alike upon the railway and the shipper. It was then believed, and perhaps with good reason, that the chief cause of rebates was in the tremendous power of certain large corporate shippers to force the railways to make lower rates upon their shipments than upon the traffic of their smaller rivals. The Elkins Act meant an advance in the efficiency of federal control; rebates have most certainly not existed since 1903 to the same degree as before that date.

The popular demand for still further changes in the federal transportation law continued. The call for more efficient, even extreme, control of rates continued to be heard during the years 1903–08. The State legislatures were, as we have seen, all too eager to answer this call, and during this period they passed some of the most ill-considered acts in the history of the American railways. Congress also answered this call by the enactment of the Hepburn Bill, of 1906—a vitally important revision of the Interstate Commerce Act.

President Roosevelt, who always keenly felt public opinion, and who could give expression to it in most vigorous fashion, was the compelling force back of the passage of this revision. He had as early as 1904 recommended to Congress, that it confer upon the

commission full power, upon complaint and after hearing, to prescribe certain rates, which should be effective until nullified by a court of review. Such a far-reaching suggestion brought forth the most intense interest, on the part of the public and the railways alike, in the revision of the commerce law. The American people now became more deeply interested in railway legislation than at any other time in their history. The Senate Committee on Interstate Commerce, after the most exhaustive hearings, issued, in 1905–06, five large volumes of hearings and a digest—the most complete and valuable, in spite of some inaccuracies, document on the railways of the United States ever published. This report, especially its digest, had great influence upon the members of the national legislature, and upon public opinion.

President Roosevelt sent to Congress another vigorous and effective message; and early in 1906 the Hepburn Bill was passed by the Lower House. Its passage was by the almost unanimous vote of 346 to 7—a vote too overwhelmingly one-sided to show widespread independence of thought. The Senate might or might not pass it, and this fact brought much keenness to the public interest, and much activity on the part of the railways in their publicity programme. In the Senate, the bill was submitted to a most searching criticism. A great debate was held over its passage—a gigantic battle between the conservatives and the radicals. The bill finally passed, with only three dissenting votes—an opposition so slight at the end as to indicate that the bill was comparatively perfect, or that the Senate, as well as the House, may

at times express in its vote sentimentalism rather than independence of thinking.

The Hepburn Bill for the first time specifically placed under federal control—that is the control of the commission—the express- and sleeping-car companies, and the pipe-line transportation companies except those of water and gas. It also covered switches, spurs, terminals, and all vehicles of carriage, whether owned by the railways or by separate companies. It had been in these, rather than in the regular forms of railway carriage, that most of the abuses had occurred.

Discriminations had been notable in the case of the coal roads—the railways, which were also in large part the owners of coal fields. These roads had transported their own coal at a lower rate than that which they charged the rival coal mines. To meet this abusive discrimination, a clause was inserted in the Hepburn Bill, which commanded all such railways to sell their holdings in the coal fields. It declared that no railway would be allowed after the first of May, 1908, to move in interstate commerce any goods, other than timber or its manufactured products, which were produced directly by itself or indirectly under its authority.

This clause, widely known as the "commodity clause," has been the subject of much consideration before the courts. It was in 1908, by the Circuit Court of the Eastern District of Pennsylvania, held to be practically unconstitutional[1]; and the court gave permission to the commodity company to sell its stock to the share-holders of the railway. During the

[1] 164 Fed. Rep., 215.

next year, the Supreme Court reversed the ruling of the lower court on the point of constitutionality. It, however, made such a vitally important distinction between the ownership and the transportation of coal, that the commodity clause of the Hepburn Bill became ineffective. This decision of the Supreme Court was not to be final. In April, 1911, the court made a new interpretation of the clause, and ruled that a railway company may not use its stock ownership in a coal company in such a manner as practically to defeat the commodity clause.[1] This decision means that the railway must, in actual fact, as well as in theory, separate itself from its coal company.

The Hepburn Bill more completely stated and defined the powers of the commission over rates. The Maximum Rate decision made it clear that the commission did not, from the Act of 1887, possess the power over future reasonableness—it could only declare a certain complained-of rate unreasonably high. The shipper could sue for the excess, in case the commission decided against a certain rate, but he rarely exercised his right to do so. The process was expensive as compared with the amount involved in the excess, and he generally shifted it to the ultimate consumer of the goods. To bring relief to the shipper and the ultimate consumer, there was, after much debate, granted to the commission the power to issue an order, in which reasonable rates were prescribed as the maxima. These maxima should go into force within thirty days, and remain for two years, unless

[1] United States *vs.* Delaware and Hudson Company, 213 U. S., 366; United States *vs.* Lehigh Valley Ry., 220 U. S., 257; United States *vs.* Erie Ry., 220 U. S., 275.

suspended by the commission itself or by a court. But, since such an order might be suspended or set aside by the Circuit Court, the commission was greatly restricted in its prescription of rates.

The hands of the commission were, therefore, strengthened, though not to the degree that was desired by the general public. The power to require complete publication of rates and a uniform system of bookkeeping, as well as the power to prescribe certain maximum rates, enabled the commission to do more effective work in the nation's control of railway transportation. Its membership was also enlarged from five to seven, with terms of seven years instead of six, as in the original act.

The Hepburn Bill did not, however, bring full satisfaction to the extreme radicals. They would not, in fact, be pleased with anything short of complete Congressional maximum rates. Nor did it satisfy those conservatives, who thought that the machinery of control would not be complete until a court of commerce or transportation, to which appeals should lie from the decisions of the commission, should be established. Demand for further revisions of the Interstate Commerce Act soon, therefore, became pressing; and this was met by the passage, in June, 1910, of the Mann–Elkins Act. This, like the Hepburn Bill, was only an amendment to the Act of 1887, though a comparatively far-reaching one. The Hepburn Bill was a fundamental revision, the Mann–Elkins, a technical and detailed one. The passage of the one aroused the most wide-spread and intense public interest, of the other, very little.

The Mann–Elkins Act extended the scope of the

jurisdiction of the commission, to include telegraph, telephone, and cable companies. The Interstate Commerce Commission now became a practical public service commission. The most important change in the scope and power of the commission was, however, in reference to the long and short haul. The phrasing of this clause of the Commerce Act had since 1887 remained unchanged, but its efficacy had been greatly limited by the Supreme Court decision in the Alabama Midland case, in 1897. The ruling of the court, to the effect that competition, rail or water, at terminal points constituted a dissimilarity of condition and, therefore, justified a larger charge for the shorter than for the longer haul, severely restricted the work of the commission. While the effects of the court decision were in many particulars wholesome and advantageous, especially in the Southern territory, still a good many serious abuses arose under its cover. Every possible pretence of the existence of competition was at times made use of in defending discriminations in rates in favour of the shipper located at the competitive points. The railways, under the protection of the court decision, made too serious effort to prevent the coming of the distance or cost principle of rates.

To restore the "long and short haul" clause to active power, was now the great task of Congress. The senators and representatives from the South were enthusiastically in favour of its restoration, but their influence was lessened by the fact of the "Solid South" in politics. But for the aid of the insurgents of the West and South-west, where the "basing-point" system of rate making was also to an extent in vogue, the

restoration of this clause would have failed. Finally the old phrase "under substantially similar circumstances and conditions" was eliminated, and it at once became illegal for a railway under any conditions of traffic to charge more for the shorter than for the longer haul over the same line, in the same direction, and at the same time, unless with special permission of the commission. The railways were given until February 17, 1911, to decide upon their course of action. The commission was also empowered to regulate the routing of shipment; the clause forbade a railway to charge more for a through rate than for the sum of the intermediate local rates.

The new "long and short haul" clause has placed in the hands of the commission the power to work for the distance principle of rates in the large territory of the South and in much of the West. It will, most probably, allow the fewest possible deviations from the rule of a distance rate. Actual facts of traffic will in the future, as they have in the past, hold a place in the minds of the commissioners. The important decision of July 24, 1911, in the Spokane–Reno–Pacific Coast cases, makes it clear, however, that the commission's "rule of reason" will follow as closely as possible the distance basis of rates. And the time has come when such a basis may, without great hindrance to commercial and industrial growth, be applied to much of the traffic of the entire United States. The change from the value of service basis to a cost or distance basis should, nevertheless, come very slowly.

For the protection and encouragement of water transportation, and really in connection with the "long

and short haul" clause, the new act provided that a railway which competes with a waterway may not, without a hearing before the commission, increase its rates. It has, of course, the perfect right to decrease them, even to the point of driving into bankruptcy its rival water-carrier, but it will now most probably not resort to such a measure.

The Mann–Elkins Act also made a radical change in the power of the commission to prescribe rates or to reject those made by the carrier. It provided that the commission should hold a hearing, as to the reasonableness, upon all proposed increases in rates; and that, pending the hearing, the commission might suspend the operation of the new rates, ordinarily for not longer than four months beyond the time when they should be effective as designated by the carrier. If the hearing cannot be completed within four months, the commission may suspend the operation for six months longer. The commission was, of course, empowered to condemn, on the basis of unreasonableness, the rates which go into operation at the expiration of the ten months, since it had the right to judge any rate, however long in operation, unreasonable. The carrier was required to bear the burden of the proof of the reasonableness of any increase made after January 1, 1910—a distinct copy of the British Act of 1894.

Since the passage of the new revision of the National Commerce Act, the commission has become tremendously powerful and effective. Its functions and powers have all now become clear and definite. It no longer must sit passively waiting for complaints—and many should have been made that, because of the

expense and trouble, were not made. It now acts of its own initiative; and it acts with the full confidence of certainty and power. Within the short period of its new life, it has handed down two remarkable decisions. On February 23, 1911, it decided against the carriers in both the Eastern and Western cases. A number of railways had in the latter part of 1910 proposed increases in rates in the territory of the "Official" classification, amounting to about $27,000,000 yearly. The commission refused to accept the increases and ordered the railways not to make them. Certain roads in the Western Trunk Line territory also proposed increases, but the commission refused to accept or to allow them. In both cases, the carriers were required to cancel all their proposed increases; and, in both cases, the commission issued a decree that, if its order was not complied with by March 10, 1911, it would by formal order put the existing rates in force for at least two years. Such a far-reaching decision came after exhaustive investigation and hearing, and it rested upon what the commission thought to be the fact that the railways had not, as was by the law required, proved the necessity of their proposed increases.

The second important decision was made on July 24, 1911, in the Spokane–Reno–Pacific cases. These cases in the transcontinental traffic had been pending for many years. The commission in this decision took at once a tremendous step toward the abolition of the "blanket" or "basing-point" system of rate making, and towards the institution, on a very large scale, of a practical distance rate, after the manner of the zone system of some of the continental countries.

Another important change was made by the Mann–Elkins Act. A Commerce Court was created, as a court to which appeals should go from the decisions of the commission, and which should enforce its orders in case of a request from the commission. It had for a number of years been thought that such a body was necessary to complete the machinery of the nation's control over interstate traffic. The regular circuit courts were too busily engaged with many other duties to give the most expert thought to transportation problems and laws. The Commerce Court was created for the purpose of bringing relief to the circuit courts, and also of providing for the specialisation along the line of transportation law.

The new court was made to consist of five members, who, when not engaged on transportation problems, were to serve as additional circuit judges. The first members were appointed by the President for terms of one, two, three, four, and five years respectively. All vacancies are to be filled by the Chief Justice of the Supreme Court, from the Circuit Court judges, for terms of five years. The act provided, unfortunately we think, that after 1914 no judge can be designated, from the Circuit Court, to serve on the Commerce Court, except after an interval of one year.

The Commerce Court was assigned the following exclusive jurisdiction: (1) in all cases in which the enforcement of an order of the commission is involved, other than for the payment of money or the infliction of criminal punishment; (2) in all cases to enjoin or set aside the order of the commission; (3) in all suits arising under the Elkins Act to enjoin illegal discriminations or deviations from published rates; (4)

in all suits asking for the issuance of writs of mandamus to require the filing of records and the keeping of accounts in the manner prescribed by the commission.

What this new court will achieve in the solution of interstate traffic problems remains, of course, for the future to know. There is, however, every reason to think that a body, endowed with the powers which it possesses, and composed of the members which President Taft has wisely appointed, will do much to strengthen the nation's control over railways. And there is, of course, always above this the great and efficient power of the Supreme Court.

One thing seems most clear, that the people of the United States have constructed a great and, upon the whole, efficient system of railway transportation, and that they have gradually but certainly created an efficient machinery of its control. This system of transportation and its control could not, we think, possibly be more efficient if under state management; it might be far less.

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CHAPTER XVII

STATE OPERATION OF RAILWAYS

IT is so easy to be partisan and dogmatic in a discussion of the state management of railways, that we hestitate to enter upon it. Nothing short of the conviction that our study of the actual experiences of railways in a number of the leading countries has some light, however small, to throw upon this most vital question, would cause us to consider it.

The Reasons

The policies of the various governments toward the railways have been very different, and for essentially different reasons. In no country has there been one single reason for state management, or for private management. The reasons have, in fact, not been simple or very clear. Political and social reasons have been the more prominent in some instances, perhaps in all instances of state ownership and operation. It is difficult to understand the institution of state railways on the basis of purely economic reasons, though these, to be sure, must play a considerable part.

In their beginnings, the relative financial ability of the public treasury or of private enterprise had much to do with the policy as to whether the railways should be state or private. When the German states entered

upon the policy of a practical government monopoly of railway ownership and management, the relative financial status had come to be of slight importance; the state treasury could bear the burdens, or private capital might without aid. State operation when it first came on a large scale in Germany was in no respect essentially different from that of the companies. There were, to be sure, defects and abuses in private management, but these could have been eliminated by an efficient machinery of state regulation. In 1905, when the Italian state resumed the management of the railways, public finance in Italy was most certainly not in a particularly favourable condition; and the government was almost wholly to blame for the existence of the inefficiency in the operation of the big companies. In both instances the fundamental force was, we think, a political and social ambition—an ambition on the part of the government, which in Germany was largely the kingship, in Italy a socialistically inclined Parliament, to play a larger rôle.

In Belgium, the desire of the administration, whether of an absolute King or of a fairly liberal Parliament, to be important in all the phases of economic life, and to be independent of private capital, notably that of the Dutch, has caused the state to play the master's part in railway operation. France, which has until the present remained largely a country of private management, has practically from the beginning meant to have a government monopoly of railway operation at some future date. It has been practical expediency that has put off to a comparatively distant time the realisation of the state's ambition to control the railways through their opera-

tion. In Austria, the policy of the state has been vacillating between social desire and economic and financial conditions.

Great Britain has, on the other hand, had a clearly consistent policy of a purely private railway both as to ownership and management; and in the United States, though the policy has not been so remarkably clear and distinct as in the United Kingdom, private enterprise has been the master, though it has received considerable aid from the state, both in the form of ownership and operation. In both countries, political and social ambition has not, until very recently at least, been so great and masterful, and private enterprise has been allowed to create and to manage railway transportation on a vast scale.

When the railway came as a new and revolutionary institution, the idea of state performance of certain services that were largely universal was already in the process of formulating. The government held, in all the countries, within its administration the postal service; and in some countries, that of the canals and highways. That there should have come to the minds of not a few a definite theory of state railways, was, therefore, very natural, even though the practical conditions were such as to make it inexpedient for the theory to become operative for many years. In those countries in which the highway was partly private—exclusively so as to operation—and the canals largely so, it was, on the other hand, equally natural that the theory should have been in favour of a private railway management.

Prior to 1830 the public treasury was almost everywhere none too large for the government to perform

its protective functions, to say nothing of the developmental. To carry on its wars and to punish the offences committed against the state and against the rights of its citizens, was even a heavier burden than the public treasury could efficiently carry. To spend from public funds for the creation and maintenance of the postal system, though this was comparatively simple and inexpensive, was as much as most of the states could then do. The developmental function—that of the state's creation and maintenance of industrial and commercial conditions and factors was, therefore, little appreciated in most of the countries prior to the coming of the railway.

The developmental function, when once known and appreciated, had a rapid growth, until it came to rank with the older function of protection. In the philosophy of social development was grounded the theory of state railways and of state aid to private railways. Upon this same philosophy was supported the theory of a more active regulation of all private enterprises, certainly those which, like the railway, contained a large element of a public nature. Political philosophy and sociology have exercised a profound influence upon the theory of the state's relation to the economic life of the individual. In their name, the government must play the leading rôle, either in the management of industry or in its control. State management of the railways has, under their powerful impulse, become a most active principle. The state line has, in fact, grown in recent years more rapidly, the private line, less rapidly. In most of the continental countries the private railway has come to be comparatively insignificant in its mileage and its traffic.

The scope of state activity in the field of business has since the beginning of the railway ever extended. In its marvellous growth, it has come to include much of the express business, of the telegraph and telephone, and of the railway. It has at times come to make good the lack of private capital and enterprise. At other times, it has come to prevent abuses in the private management; and at still other times, and we think much more frequently, in the name and for the sake of the ambition of the state.

Methods

In case the state attempts to extend its activity to the direct management of the railway business, it may adopt either of three principles of operation:

(1) To obtain revenue for the public treasury, from the profits.

(2) To make expenses and to render a large public service.

(3) To render the maximum public service, quite irrespective of the revenue.

Should it adopt the first principle, the state must follow the methods of operation which the private railway has found to be the most efficient—to perform that amount of service and in such a manner, that will yield maximum net earnings. If the second principle is made its guide, the state will work upon the basis of cost—to secure sufficient earnings to cover the cost of operation. It may make the effort to decrease the cost, or it may attempt to increase the earnings. To adopt the third principle, is for the state to think solely of the maximum service, and to make good the

deficit of operation by resorting to taxes upon the citizens.

A state railway has, of course, the freedom, in the abstract, to choose either of these three methods of management. It may, as the public school has most generally done, work upon the principle of greatest service to the public quite irrespective of the cost. Railway operation is, however, so enormously complicated and expensive, that it is, we think, unwise and unfair to adopt such a principle. The deficit accruing from such a method of management would mean a tremendous burden upon the citizens as taxpayers, many of whom would not receive any direct benefits. The public school is, or at least may be, of universal use to the taxpayers. A public railway cannot be—at least cannot be until every citizen has a railway service equally efficient and cheap.

All the countries that have as yet assumed the management of railways, whether in whole or in part, have clearly seen the practical inexpediency, if not impossibility, of the third method of operation. They have, in theory, all adopted the principle of maximum profits, though in actual results practically all of them have placed themselves in close affiliation with the principle of making expenses, if not indeed of operating at a net loss.

Rate making is the most difficult task of railway transportation, and consequently the state finds itself constantly confronted by this ever serious and complicated problem—one upon which the success of any method of operation depends. The private railway has, as we have seen, most generally followed the principle of the value of the service, or, in more con-

crete form, what the traffic would bear, in its rate making, though in so doing it has taken upon itself the task of solving the rate problem by the longest and most difficult route. It has followed this principle, because it is upon the whole the one that makes possible the greatest and widest development of traffic and of industries, even though in pure theory it may not be at some points the fairest. It is one that is the guide in all other phases of private business, even in most of the phases of government business. It rests upon the foundation of all economic life—relative value. The private railway has, therefore, made the classifications of its traffic and their schedules of rates according to the value of the service or of the commodities; goods have in their classification been differentiated from each other, and, therefore, in their transportation charges. The cost of the service has also, as we have seen, played an important supplementary part in the rôle of the private railway.

Rate making by the state railway has, on the other hand, followed as closely as possible the cost of service principle—a system much easier and more subject to routine, but which does not so readily adjust itself to the practical conditions and circumstances of traffic and industries. In abstract theory, it is more just than the value principle; and the state should in all its acts strive for the greatest possible justice to all the people as a whole. In actual practice, the cost principle of transportation rates may render more justice to some people, but it may severely restrict the freedom of others to act, to buy, and to sell, in the widest possible field. In its efforts to abolish abusive discriminations in rates, it may prevent those discrimina-

tions which are necessary for growth, and which may be defended upon the basis of value. The state railway may, and, we think, often does, in its efforts to keep rates as equitable as possible, fail to pay the necessary attention to business needs—fail to lower rates in order to secure new traffic and, therefore, to stimulate industries.

The private railway may make, and often has made, serious errors in estimating the value of its service or the value of its traffic; and, whenever this has been done, an unnecessary harm has been inflicted upon some shipper. Efficient regulation may, and does, correct this error or abuse, as may be brilliantly seen in the recent work of the Interstate Commerce Commission. The state railway may, on the other hand, place a serious obstruction to the growth of industry and commerce, and for this error or abuse there is, we think, practically no relief. The shipper may appeal to Parliament or Congress, but the Legislature has not been able to bring relief, and, we think, cannot. The worst possible condition for the shipper exists when transportation rates become the vital question of partisan politics.

We have so far assumed that any form of government may operate the railways with equal efficiency, but this assumption needs the most severe limitation. What we have said applies to such a brilliantly efficient administration as that of Prussia, in which merit, rather than partisan politics, is the dominant factor. It does not apply to the same degree to Italy, France, Belgium, and Austria. It applies to a state whose administration is highly centralised, powerful, and intelligently efficient, not to one whose officials have

terms of office depending upon the vacillating notions of a people. It is impossible for us to think of the British Parliament or of the American Congress performing successfully the vastly complicated task of operating the railways, however much we admire these bodies in their ordinary capacity. The British and the American administrations are by far too divided and too changeable to perform effectively a task which always imperatively demands centralisation and permanence. We would not desire to transform the British and the American systems of government into the Prussian form, far from it. We merely wish that these two states should not attempt a business task, for which they, from the very nature and theory of their organisation, have little capacity to perform.

History

To trace the history of the nationalisation of railways and of the methods of their management with great detail is, of course, beyond the scope of this chapter. Its details are very voluminous and oftentimes not particularly illuminating. We have, moreover, already considered those which belong to France, Italy, and Germany. We shall, therefore, give in this connection only some of the more significant facts out of the experiences of state railways.

Great Britain and the United States have the only great and distinguished examples of the private railway in the world. Great Britain has the private railway at home, but not to a great extent in her provinces; her sons and daughters have quite largely followed in the world movement of nationalisation.

There are, at present, approximately 180,000 miles of state railways in the world, while the mileage of the private railways ranges near 420,000. The state net of the world includes, therefore, practically 30% of the total mileage. Of this large net, we shall consider here only that of Belgium, Austria, Italy, France, and Germany—countries whose experiences have been, to say the least, as favourable as the average of all the state net of the world, perhaps much more favourable than the average.

(1) *Belgium*

The creation of a state net began in Belgium at the beginning of her railways, almost at the birth of her national independence. Political independence of Holland was achieved in 1830, and the railways, which were to be fundamental in Belgian life, must be independent of Dutch capital. The Belgian citizen was then poor, and there was, therefore, little surplus Belgian capital that could go into the new form of transportation. Railway building by the state began in 1834–35. Concessions for private lines were not made until 1840. The new government was strong, progressive, and efficient. Centralised sufficiently to be efficient as a railway builder and manager, it was not too autocratic to be popular with the people. It chose for its first lines the chief courses of commerce, to connect the centres of industry.

In 1840 building by private enterprise had its beginning, and by 1844 it had assumed considerable activity. It could, however, construct lines only in those sections which the state did not desire to make

use of. Competition between the state lines and the private did not, for a time at least, exist. The government net had a monopoly, and for a period it used it with practical sagacity. Its early management was efficient and entirely open, and its equipment was excellent. Such a policy of operation continued but for a short time. By 1848–50, the state railway was no longer vigorous or efficient. Though the net was comparatively complete, its management was sluggish. It paid little attention to the development of traffic. It provided no efficient system of classifications and rates. The private lines were, on the other hand, becoming numerous and active, notably so after 1850. They, by consolidations and by pools, made themselves into powerful and keen competitors of the state net, even though they operated in a territory which was by no means so favourable for traffic as that of the state lines. Their mileage increased from less than 200 in 1850 to about 1500 in 1870, while the state mileage remained without important additions; it was only 535 in 1870. With such inactivity on the part of the state system, and with much progressiveness on the part of the companies, rate wars naturally brought confusion and disaster to the state management, as well as many abusive discriminations in rates. The state net, under the force of such competition, was guilty of all the abuses of discriminations that rate wars bring.

Such a condition could not last long. The state net was weak, and the government exercised no control over the operation of the private lines. The state must again become aggressive, or retire from the field of management. It again took on new vigour in

railway construction, particularly in the purchase of its rival lines. By 1875 the state system contained more than one-half of the entire Belgian mileage and by 1885, practically three-fourths. In 1870 it adopted the policy of a practically complete nationalised system; it has since that date made no concessions of rights to private enterprise. The problems of traffic and rates were again considered with earnestness and accuracy. The rates became less, and the service, more efficient. Its passenger rates were reduced to a point lower than perhaps anywhere else in the world. Its freight rates were made lower than elsewhere in Europe. The classification of its traffic was done with comparatively great fairness.

The growth of the Belgian state net has, therefore, upon the whole been slow, notably so until after 1870. A clearer view of its growth may be seen in the kilometric figures at representative dates:

1835	135	kilometres
1845	559.8	"
1855	652.4	"
1865	749.2	"
1875	1966.5	"
1885	3173.1	"
1895	3298.8	"
1907	4271.8	"

The figures of 1907 included 178.7 kilometres, which were purchased by the state in 1906, and which were not taken into the state net of operation until 1908. The private lines amounted in 1870 to 2431 kilometres, the state, 863. By 1907 the private lines had decreased, to 587.29 kilometres (344 miles), 178.7 kilometres of

which had already been purchased for the state net.

What have been the methods of operation? What their results? The state's management has been, as we have seen, unequally efficient. Its lines had from the beginning a large and steady volume of traffic. The local traffic for them was certain, and they might haul much of the international traffic, provided only they could offer the service at a rate sufficiently attractive to secure it from the competition of the German, French, or Dutch lines, or that of the great waterway the Rhine. Belgium really held in her hands the key to the commerce of Northern and Middle Europe. The financial returns should, therefore, have been unusually favourable. Have they been?

This is a very difficult question to answer with exact accuracy. The accounts of the state railways have been kept in such a manner, that it is difficult to ascertain whether their management has been self-supporting, or has entailed a net expense upon the public treasury. State management has certainly paid more than the expenses of operation and maintenance. Has it paid also the interest on the railway debt and provided a fund for sinking this debt? At times, it has perhaps provided for these funds; at other times, it has not. If we take the year 1907 as a test—and that was certainly up to the average in traffic and earnings,—we find that the net loss to the public treasury was as much as 6,578,832 francs, not to mention the loss of revenue from the railway property and traffic that would have come to the state in taxes had the railways been in the hands of companies.

Have the operating expenses been small? This is

most clearly answered by the following coefficients of operation—the ratios of operating expenses to receipts:

1835	62.68%
1852	47.46%
1872	60.57%
1882	62.59%
1892	59.27%
1902	63.23%
1907	69.40%

The operating expenses have in recent years increased more rapidly than the income, and still the employees have not received much larger wages. Their wages are, in fact, comparatively low. Their feelings of loyalty are, therefore, not particularly intense.

The Belgian state management has, we feel reasonably sure, not upon the whole paid all the expenses; and its cost of operation has been relatively high—much higher than on the British lines. Have these conditions been offset by very low rates? For a number of years the rates on the state lines were high. They did not become low until the period of great competition between them and the private lines, 1857–70. Since 1870, when the state again became dominant, the rates on the government lines have continued comparatively low, notably so on the international traffic. In pursuing this policy of low rates, the Belgian government has perhaps made its income from railway management subservient to the gain which has come indirectly through a large volume of shipping. The development of Belgian industries

and commerce, rather than the making of expenses or profits, has perhaps during the last forty years been the method of operation deliberately chosen by the state.

(2) *Austria*

In Austria the building of a state railway net has been a more difficult task than in Belgium. The railway came to Austria almost as early as anywhere in the world. The chief officials were, however, opposed to the policy of state management, though they were willing to allow some government aid to railway construction. During the first decade, 1832–42, private enterprise alone built and operated the lines. The state did not enter upon a course of railway construction until 1842, and it did not become very active for many years. The revolution of 1848 and the Hungarian Wars so completely absorbed the funds in the public treasury, that little was left for the state to use in the performance of the developmental function. There came, in fact, by 1854–55 a reverse in the policy of state railways. The financial conditions of the treasury were far from satisfactory, and the influence of France, which was making conventions with big companies, instead of operating railways by the government, was very important. The state now, for fiscal and political reasons, sold its lines, even at the sacrifice of half the cost of their building, or leased them to companies. The private railway was now dominant; the government gave it liberal rights and privileges, as well as made it guarantees of interest on its shares.

While the period 1854–75 was one of no activity on the part of the state towards a government net, and while the government rendered considerable aid to the companies, still the private lines did not prosper. The Austrians were as yet very sluggish in their industrial development. For many years their administration had been illiberal; their government, as well as their economic life, was still largely mediæval. The railways had, therefore, little traffic, and the competition which they must meet was vigorous. The great Danube was yet the master of interior transportation.

The fact of the lack of prosperity to the private railways, connected with the lessons of the Prussian War of 1866 and of the economic crisis of 1873, meant a revival of the state net. The state was again, by 1877, active as a builder of railways, and its activity has since that date continued to the present. The government lines have come to be the controlling factors in Austria's transportation.

The policy of the state has, therefore, been a vacillating one, as may be clearly seen in these percentages of the state mileage to the total:

1840..... 0%
1845.....47.39%
1850.....61.38%
1855.....32.68%
1860..... 0.44%
1870..... 0.21%
1875..... 1.11% (of a total of 10,331 km.)
1880.....17.23%
1885.....38.60%
1890.....43.51%

1895.....53.50%
1906.....67.95% (of a total of 21,594 km.)

The state management has since 1885 adopted the method of rendering service, rather than of securing maximum profits. Its purpose has been to develop industries and to cement a most diversified nation into a unified whole. Its lines have since 1895 been sufficiently important to place it in the position of the master in rate making for all the mileage; the private lines have not been strong enough in their competition to enable them to exercise much power. Under the influence of such a method of management, the net earnings of operation over the expenses of operation and maintenance could not be large. They were 2.2% in 1903, 2.38% in 1904, 2.85% in 1906, and 3.01% in 1907. The expenses of operation and maintenance did not include those of interest on the railway debt (state debt) or of a sinking fund for its ultimate settlement. These together made percentages considerably larger than those of the net earnings of operation over operating expenses. The state management of railways has, therefore, not made its expenses, and the public treasury has had to bear a considerable burden because of the state system of railways.

Whether this burden has been offset by the cheapness of service, we cannot say with much accuracy. There have, to be sure, been some reductions in railway rates during the last quarter of a century. The average receipts per ton per mile for all the Austrian lines, state and private, declined during the decade 1880–90 from practically 1.81 cents to 1.39; the decline from 1890 to 1902 was slighter, from 1.39 to 1.26

cents. In a few instances the rates of the private lines have, according to their charter maxima, been higher than those of the state, but generally they have not. The freight rates of the state system have, therefore, not been particularly low. They have, in fact, been much higher than in the United States, though the character of the traffic of the two countries has had much in common. Both have had a large volume of the low grade commodities. It would, therefore, seem to be fair to say that the Austrian state service has not been notably successful in its cheapness.

It is difficult to compare state operation in Austria with the private. The costs of construction and operation and the conditions of traffic have been materially different. If we take four private lines that have not called upon the state for their guarantees of interest, as the representatives of the British Board of Trade did when they made their investigations, we find that one of them earned during the period 1902–06 no dividends on its capital, one, from 4% to 5.25%, one, from 5.4% to 6.6%, and one, from 11% to 12%; and these companies paid taxes to the state.

(3) *Italy*

The experiences of state management in Italy have already been given. It is sufficient here to say that this management never had anything like a complete or fair test until in 1905. To pass adequate judgment upon the success of its operation for so short a time, is, of course, impossible.

It was necessary for the newly organised administration to invest largely in new equipment, and this it did

during the first three years of its existence. It increased its locomotives from 2664 to 4053, its passenger coaches from 7008 to 9073, and its freight cars from 50,924 to 78,660. With such a large outlay made during the short space of three years, the returns from which will accrue for many years to come, it is clearly unfair to judge of the efficiency of state management solely by the percentages of net earnings of operation over operating expenses. These were for 1906–08 approximately 2.18% on the capital cost, and for 1908–09 about 1.75%. The state was, however, paying practically 3.5% on the railway debt—a net loss to the state treasury of about 75,000,000–77,000,000 lire a year.

The exhibit of these earnings as compared with those of the Mediterranean Company, which for 1885–1901 made an average net earning of 5.15%, for 1901–04, of 3.3%, or of the other mainland company, the Adriatic, which made for these same periods 6.53% and 6%, is on the surface most unfavourable to state management. It should, however, be noted that these companies spent little for equipment, and that, while their conventions with the state were very favourable to themselves, they were expensive to the public treasury.

State management, as judged by its expenses, does not make a favourable showing, as may be seen in these coefficients of operation:

1905–06	64%
1906–07	73%
1907–08	74%
1908–09	78%

These ratios of operating expenses to income are very high, but they must, of course, be considered in connection with the conditions of operation and maintenance, as well as of traffic. The cost of operation and maintenance must, from the very nature of much of the territory through which they operate, be large; and the traffic is as yet comparatively slight, however favourable be the policy of the railways toward the shippers.

State management in Italy has, therefore, not yet proven its success in terms of its net earnings. Has it in terms of its rates? Has it materially changed the method of operation from that of maximum profits to that of maximum service? Its passenger charges have upon the whole had no substantial reductions, except for the long journeys. Its freight rates have had practically no reduction, as may be seen in the average receipts per ton per mile. They were 1.97 cents in 1880, 1.64 in 1890, 1.57 in 1899, and 1.56 in 1908.

(4) *France*

The government in France has as yet taken no prominent part in railway operation. It has from the beginning been deeply involved in railway construction, though, with the exception of the period 1878–83, it has shown its activity in the aid that it has rendered the companies. The first net for operation was acquired in 1877, when, largely because of the utter inability of some small companies to operate the lines successfully, the state purchased 2600 kilometres, in South-western France. The state net grew very little, with the exception of the period 1878–83, when by purchase and construction it acquired practically

12,400 kilometres, all of which was transferred to the big companies by the conventions of 1883, until 1908–09. It contained but 2990 kilometres at the beginning of 1909. Now the Western Company's lines of 5965 kilometres were added by purchase. Five of the big companies were now left, and they had by far the greater part of the mileage. The state net in 1909 consisted of 8955 kilometres, out of a total of practically 40,000 kilometres of the lines of general interest. According to the conventions of 1883, these five companies will go out of existence, and their lines pass into the state net, between 1950 and 1960.

When the state in 1908–09 took over the operation of the lines of the Western Company, it was manifesting no aggressiveness of nationalisation. This company had been such a heavy burden to the public treasury, in its large calls upon the government for financial assistance, that its indebtedness to the state had become larger than it could ever repay.

France has, therefore, never had the opportunity to adopt any special method of operation. It has managed its small net upon the principle of maximum profits. It has never reduced its rates with the view of maximum service, only in order to secure more traffic and earnings. Its rates have not upon the whole been lower than those of the companies. Sometimes they have been higher. The returns from the operation of the old net have never been good. The traffic conditions have not been favourable, and the most efficient private management would have had no great prosperity. Its lines have been located in a poor region, and they had had no direct connection of their own with the heart of all French life—Paris. The

new net has been under state control for too short a time for us to pass any judgment upon its efficiency.

(5) *Germany*

It is in Germany, especially in Prussia, that the policy of state management has been most triumphant, though in Belgium it has for most of the life of the railway been a dominant factor. Prussia is, however, alone in her great financial achievements of state operation. The fundamental reason for the institution of the state railway in the German states was the ambition of the political and social forces; and this has to the present been the dominant factor in state management, though financial and economic forces have been influential, particularly in the management of the freight service.

In Prussia the policy of state railways was not for a good many years clear or definite. From 1838 to 1842, the state's relation assumed the form of rigid regulation of the private railway, and of occasional assistance in its building The famous law of 1838 clearly expressed this form of the state's relationship to the railways. During the next nine years this relationship was in the process of changing its form, towards that of state management. The funds of the public treasury were now capable of rendering much developmental service. The state was, therefore, to form its first net; by 1848 it possessed 392 kilometres.

It was, however, during the period 1848–79 that the philosophy of the developmental function of the state crystallised itself in the form of the state management of certain services, notably that of transportation.

The policy of state management became, under the influence of this social and political philosophy, a clear and vigorous one. The formation of the North German Union, in 1866–67, added to its vigour; and the creation of the German Empire, in 1870–71, made another and a very important contribution to it. From 1873 to 1879 the idea of a large private railway was permanently abandoned in favour of a great state system.

Since 1879 this policy has come to almost a complete realisation of its better self. During the period 1879–95 the Prussian state purchased as much as 14,273 kilometres; its net had by the end of the century grown to practically 31,000 kilometres, and by 1910, 37,162. In 1907 there were 22,041 miles of state railways in Prussia, with only 1490 of private.

This statement of the growth of the state railway net in Prussia, though very brief, tells with sufficient detail of a wonderful expansion in the power of its administration. A similar statement might be made in reference to the nationalisation of the railways in other German states. In Bavaria, for instance, the same process has been steadily at work. The development of the government net has grown from 164 kilometres in 1845 to 4295 in 1881, to 7267 in 1910; and at this latter date only 267 kilometres remained in the hands of private enterprise. In Saxony the growth has been similar to that in Bavaria. The first purchase of a state line was in 1847, and from that date to 1905 the amount bought by the government was 1273.8 kilometres. Only six miles of private line remained in 1910. In 1907–08 the state lines in all Germany amounted to 31,430 miles, the private to

2469—92% of the total in the hands of the governments.

What of the methods of operation? What of the financial results? The principle of maximum public service has been more or less prominent in the passenger department, though even here maximum profits have been clearly an influential factor in operation and rate making; and the freight service has, we think, been quite largely controlled by the principle of profits for the sake of the public treasury. We should expect to find that the net earnings have been at least important, if not indeed large. In Bavaria the percentages of net earnings of operation over operation and maintenance expenses have been for representative years: 4.26 in 1890, 3.42 in 1895, 3.38 in 1900, and 3.71 in 1906. From these percentages must, however, be deducted the interest on the railway debt, which has been perhaps as much as 3% as an average. This leaves very little profits to the public treasury. In Saxony the results have been substantially the same. The ratio of earnings over costs of maintenance and operation was 3.03 in 1901, 4.66 in 1904, and 5.24 in 1906. Since these ratios in Saxony, as in Bavaria, were calculated before the interest on the railway debt was deducted, little has been left as net profits to the state.

The Prussian State system of lines has made the following exhibit of operation income over maintenance and operation costs, as expressed in its percentages on the capital, for certain representative years:

1854.....2.21
1870.....6.25

1879	4.52	
1890	5.26	
1895	6.75	
1900	6.87	(Prussian-Hessian)
1905	7.13	" "
1909	5.94	" "

From these large percentages must, as in the case of Bavaria and Saxony, be deducted the interest on the state railway debt and the amount of the fund for its ultimate settlement—perhaps on an average of as much as 3.5%. The percentages as given above represent only the earnings of operation over maintenance and operation expenses, in which the costs on the debt are not included. In 1899 the state railway debt amounted to 88.4% of the total Prussian state debt, in 1905, 82.38%, and in 1909, 74.72%. After these large deductions have been made, the net profits from the railway management to the state treasury seem much smaller. The lowest per cent. of income over maintenance and operation expenses for the period 1881–1906 was 4.86 (in 1883), and the highest, 7.13 (in 1905), with an average of 5.35% for 1881–95 and of 7.08% for 1897–1906. After the deductions have been made, the average net profit to the state treasury is about 2% and 3.5% for the respective periods. It is, moreover, probable that the state would have received almost this amount from taxes upon the property and operation of the railways had they been in the hands of companies.

If our estimates of the financial returns to the public treasury from state management be correct, and we are forced to think them substantially so, it has not

been a particularly good investment to the German states to undertake the task of the nationalisation of their railways, unless state operation has meant a more efficient and a cheaper service than could have been secured by private operation under state supervision. What of the service and rates?

Their passenger service has been cheap and efficient, but private operation in the United States has supplied a service certainly as efficient as the German first and second class and hardly as expensive. The charge for the Prussian first class-service is considerably higher than that in the United States. Its second-class rate is approximately 1.7 cents per passenger per mile, while the American average for the first class is practically 2 cents. The difference in the purchasing power of money should be considered; that of 2 cents in the United States is approximately equal to 1.7 cents in Germany. Their freight service has, on the other hand, been far more expensive than that in the United States. The difference in the character of the traffic and in the length of the haul cannot explain away all the difference in the charges. The German freight service has, moreover, not adjusted itself to the needs of industry and commerce as it should have done. It has been admirable from the point of view of the abstract justice of the service and rates, but it has, we think, been too non-adjustable; the distance principle of rate making has been too rigidly followed, and the value of the service or of the commodities has been too much ignored.

General Results

Our investigation in the history of state operation

in a number of important countries entitles us, we fancy, to make a few general statements concerning it, without bringing upon ourselves the charge of dealing in extravagances of speech. We believe the following general facts make themselves fairly clear throughout the history of state management:

(1) That government operation of the railways has, with a few notable exceptions, as, for instance, the Prussian, not paid all of its expenses, and that it has consequently been a burden upon the tax-payers.

(2) That government operation, though it has been a burden to the citizens as tax-payers, has not supplied them with a particularly excellent service—that its freight service especially has lacked in efficiency and practical adjustability to traffic and industrial conditions.

(3) That government operation, though it has not been particularly efficient, has not been especially cheap—that its freight rates have not been, after all allowance for difference in traffic conditions has been made, as low as those upon a number of the privately managed railways.

(4) That government operation, to be at all efficient, presupposes the existence of a highly centralised, powerful, and intelligently active administration—an institution which exists only in a few countries, and which the people of the United States have, at the present at least, no desire to possess.

(5) That government operation is not needed at the present, at least in Great Britain and the United States, to supply the lack of railway facilities. Private capital with slight aid has done this in the past, and it can alone and unaided do it in the future.

(6) That government operation is not needed at the present, at least in Great Britain and the United States, to correct the abuses of private operation. This has been done by government supervision and regulation with a fair degree of efficiency, and it can be, and will be, done in the future with still greater efficiency.

(7) That the institution of government operation in such countries as the United States and Great Britain, with their present systems of comparatively efficient operation under relatively effective state control, could have no possible defence except that of political and social ambition—the ambition of the state to become wider, greater, and more powerful in all phases of the life of the people, to perform services which private enterprise under state supervision could perform just as well, and perhaps much more efficiently. Its only possible defence would be socialism.

Extension of the Parcels Post, Not State Operation in the United States

It has, we think, been made reasonably clear that private operation of the railways in the United States under government control has become comparatively efficient and equitable. It is equally clear that a government so divided and decentralised, and so changeable in its partisan politics, as that of the United States cannot efficiently manage a business involving so much capital and so much risk and complexity as railway transportation, especially when there is in reality no fundamental cause for such action.

The management of the railways in the United States should remain in the hands of private enterprise, and the scope of this operation should, we think, be extended so as to cover much of the express service. The railways have transported most of the express for express companies, not upon their own responsibility. Why should they not develop a service of their own, which would transport, at least, all the larger packages of commodities that must move at express speed? Such an extension of the scope of the railway service would place the shipper in more direct and closer relations with the carrier. These relations have been more indirect and complicated than necessary. The express company has made the collection and delivery of the commodities and assumed the risk of their transportation; the railway has supplied most of the facilities of transport and has moved the cars.

The express companies have since about 1850 become larger and more monopolistic, until they have at present a territory almost their own. Six companies, out of approximately thirty, now have almost 90% of the total express mileage and about 80% of the total net income from the express service. The transportation of freight and passengers has also come to be performed by a few large systems of railways; and these same systems transport, for the express companies, most of the express of the United States. The railways could upon their own responsibility effectively and economically perform most of the express service. They could, we believe, do it with more satisfaction, responsibility, and economy than the present express companies. The net earnings of most of these companies have for many years

been comparatively large; in some instances notably large. The percentage of the earnings to the stock in 1909 was for the American Company 19.3, for the Adams 23.8, for the United States 8.9, and for the Wells Fargo 58.3. It would, therefore, be very profitable for the railways to transport much of the express upon their own account.

The express rates of the United States have been high. They have upon the whole averaged a good many times those of the freight service. And this is true of many countries—in fact of all. In France they are about 7 to 1, in Prussia 5 to 1, in the United States from 14 to 16 to 1. These ratios must, of course, be considered in connection with the fact that the express moves in comparatively small lots and the freight in large ones. For the same size piece shipments, the express rates in the United States are from 3 to 6 times those of the freight. From the point of view of its rates, both the railways and the shippers must be vitally interested in the transportation of express.

The railways of the United States should develop an express service of their own, at least for the larger packages. And the postal service should, we think, extend its scope to cover more of the transportation of the smaller parcels. The post-office possesses the machinery, in all parts of the country, for the movement of small packages. It now transports, through contracts with the railways and other carriers, parcels weighing as much as 4 pounds. Why could it not with a fair degree of efficiency and economy transport parcels weighing not more than 11 pounds—the amount carried by post in the domestic service of

many countries and by the international postal union? The United States now has conventions with about 24 countries, by which it carries through the post-office in the domestic service parcels of 11 pounds when sent to or from any of these countries.

The small parcels, those not exceeding 11 pounds in weight, consist of merchandise or of special commodities, as, for instance, fruits, dairy products, etc. The classification of these parcels, as now made by the express companies, is very simple. Their rates are consequently fixed with little difficulty. The transportation by the post-office of parcels weighing not in excess of 11 pounds would, therefore, not involve great complexity of classification or rates. The capital needed by the parcels post is very slight as compared with that required by the railways; and its returns are relatively constant. The simplicity of the service and the relative smallness of the capital, as well as the certainty of its returns, make it a proper business for state operation.

The post-office could, we think, perform this service with fair success, certainly if public opinion should be sufficiently intelligent and interested. If it could perform it with fair economy and efficiency, it would bring an express service within the reach of the many rural sections of the United States, which now do not and cannot have such a service. The private express service cannot easily reach the thousands of non-railway points. These points should be connected with the towns, for the welfare of all. The fact that the present freight service has as its minimum of charge that of 100 pounds and the further fact that the present minimum of charge by the express companies

is about 25 cents mean that even the railway points do not possess an efficient and economical transportation service for small packages. The express companies do not have the machinery for such a service at many points, if indeed at any. The post-office has the machinery at all points.

The post-office could transport the small parcels at the present express rates and make profits. It could carry them at rates lower than the present ones, and pay expenses. The express service of the United States is too expensive to meet at all completely the needs of a great and widely extended people. The rates of the service may be, and most probably will be, reduced by the Interstate Commerce Commission, to which was in 1906 and 1910 given the power of control over express companies. This will not, however, bring a cheaper service to the rural sections.

The extension of the post so as to cover parcels weighing not more than 11 pounds would not bring loss to the railways; they would continue to perform the service of actual conveyance for the great bulk of these parcels. The post-office, as well as the express companies, must employ the railways to supply, in large part, the facilities of their transportation and to move the cars. There should, therefore, be no opposition on the part of the railways to the proposed extension of the parcels post. A cheaper transportation of the express packages weighing between 4 and 11 pounds would certainly mean a great increase in the number of such parcels, and this would, we think, bring increased returns to the railways from their transportation.

That it would also bring benefit to the man who lives

in the rural sections which are now without express service, there can be little, if any, doubt. He could buy from more distant places a number of the needed commodities and secure their delivery at his home without a high cost. He could more economically purchase these from the large mail-order houses located in the centres. He could also sell some of his products at a smaller cost of delivery. As a consumer, he would receive gain from a parcel post. Would he also as a producer? The very facility with which he could buy from the mail-order houses or sell to some distant purchaser would tend to discourage the development of the local merchant. Does not the man of the rural section need the prosperous local merchant, to whom he may sell many of his products which cannot be shipped in 11-pound lots? Yes, most certainly. Such a merchant is, however, not the one from whom he now obtains many of his small purchases; many of these come from the store which sells to him but does not in turn purchase from him. An efficient post for parcels not exceeding 11 pounds in weight would unquestionably discourage the small local merchant who only sells to the farmer and does not buy from him. And the fact that a parcels post would discourage such a merchant is, we think, no valid objection to it.

The parcels division of the post-office would deal with commerce, not with education, as is in part the case of the transportation of letters, newspapers, and periodicals. Its defence must, therefore, rest solely upon the basis of the service which it renders to trade. A rate that does not consider the distance element in transportation might in such a vast country as the

United States centralise trade too much in those parts which are already too congested. A system of zone rates, after the manner of the German, would prevent this, though it would make the administration of the parcels post more complicated than would a non-distance rate. A parcels post for packages not exceeding 11 pounds with a non-distance rate has not, we think, brought concentration and congestion in Great Britain. It must, however, be remembered that the area of the United States is about thirty times that of the United Kingdom. The Germans, with an area about one-seventeenth of that of the United States, have found it best to transport their parcels according to a zone system of rates. The fact that their post-office carries parcels weighing as much as 110 pounds must, of course, be considered; it makes a non-distance rate all the less reasonable.

The proposition to extend the scope of the parcels post in the United States does not suggest a new function of the government. It cannot be condemned upon this basis. It does, however, make necessary a change in the method of rate making. Should the post-office undertake the enlargement of its parcels department, it must, if it acts with fairness and wisdom, adopt the principle of making the expenses of the operation. The post-office can afford to transport letters, and especially certain newspapers and periodicals, upon the basis of maximum service, even though at a slight loss; the educational results of such transportation are of value to the people. The conveyance of small parcels of the ordinary commercial products at public expense cannot, we think, offer a reasonable defence. The parcels post department

must be managed upon the principle of self-support.

For a number of years, this has been the principle of rate making for the first, third, and fourth classes of service. It has been in the second class that the postal service of the United States has quite largely departed from the principle of making the expenses of operation; and this has in large measure been due to the idea of the educational service which newspapers, magazines, and periodicals (issued at least quarterly) have rendered to the people. This class of postal matter has amounted to nearly 65% of the total weight of all the mail of the United States, while its income has been but about 5% of the total postal revenue. By far the larger part of this class has moved at the insignificantly small rate of one cent per pound—publishers' rate—, while its actual cost of transportation has been from 5 to 7 cents per pound. The demand for a radical change in the principle of rate making for this class of service is strong. The second class must soon adjust itself more nearly to the basis of the cost of the service; its educational value cannot possibly equal the great difference that exists between its cost and its income.

What should be the rates of the enlarged parcels post? The present parcels rates for the purely domestic service are: 1 cent an ounce (16 cents a pound) for merchandise and 1 cent for 2 ounces (8 cents a pound) for books, seeds, plants, etc. The merchandise rate for the international service between the United States and twenty-four other countries is 12 cents a pound for parcels weighing not in excess of 11 pounds. Could the post-office of the United States afford to

offer a rate of say 16 cents for the first pound and of 6 cents for each additional pound in the package, with 76 cents as the maximum for a package of 11 pounds regardless of the distance? The British post carries parcels at 6 cents for the first pound and 2 cents for each additional pound in the parcel, with a maximum of 24 cents for parcels weighing as much as 11 pounds. The average length of the postal haul in Great Britain is, however, very slight as compared with that in the United States—perhaps only about one-tenth. This difference in the haul must make a significant difference in the rate, if indeed it does not demand for the United States the adoption of a zone system of postal rates in the place of the non-distance one. The density of population of Great Britain is about fifteen times that of the United States. One rural carrier in the United Kingdom can serve from ten to twelve times as many people as in the United States. The rate in the United States must, therefore, be considerably higher than in Great Britain.

The German charges for parcels are as follows:

Under 5 kilograms (11 lbs.).

(*a*) For a distance of 10 German miles (46 English), 25 pf. (6 cents).

(*b*) Unlimited as to distance, 50 pf. (12 cents).

For each additional kilogram (2.2 lbs.), the rate varies with the zones:

10	German	miles	5 pf.
20	"	"	10 "
50	"	"	20 "
100	"	"	30 "
150	"	"	40 "
Over 150	"	"	50 "

The German parcels rates vary with the weight and with the distance of the carriage. The purpose of these variations is to make the rates respond to the cost of service, and, in the case of that of distance, to prevent too great a concentration of trade in certain centres. A uniform rate for a letter is more equitable than for a parcel of merchandise or other product; the weight of the letter is practically a negligible quantity, and a non-distance rate for it can have no influence towards the concentration of commerce in the great cities. The German rates are considerably less than the post-office of the United States could afford to charge. The haul in one country is comparatively short, in the other very long. The density of population in Germany is almost twelve times that of the United States; one rural carrier can there serve perhaps eight times as many people as in the United States.

Should the parcels division of the post-office adopt a zone system of rates—let us say at 100, 200, 500, 1000, 1700, 2500, and over 2500 miles—, the rates suggested above must for the first zone be materially reduced. Just what they should be, must be decided by experience. It would be impossible to fix the rates, if according to the expense, as they should be, with accuracy except after experimentation. The rates in force in Great Britain, Germany, and the other countries which have had a successful experience with the parcels post, could, of course, be of slight value to the United States; the differences in area, density of population, industrial and commercial conditions, and the cost of service, make a fair comparison impossible. The general scale of costs is less in most of these countries, certainly in Germany; and here the govern-

mental service is more uniformly intelligent and efficient than it is in the United States.

For the Government in the United States to undertake the operation of the railways would be, at least for many years to come, an act fraught with many risks and dangers, economical and governmental. The proposed extension of the scope of the parcels post, while by no means a simple and easy proposition, may, we think, be realised with fair success.

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